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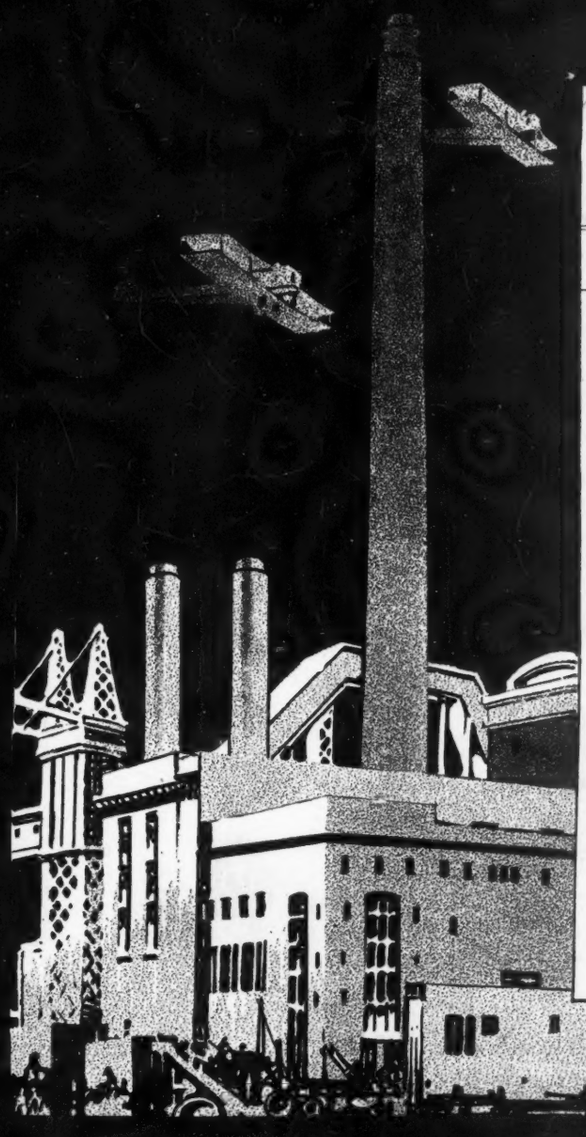

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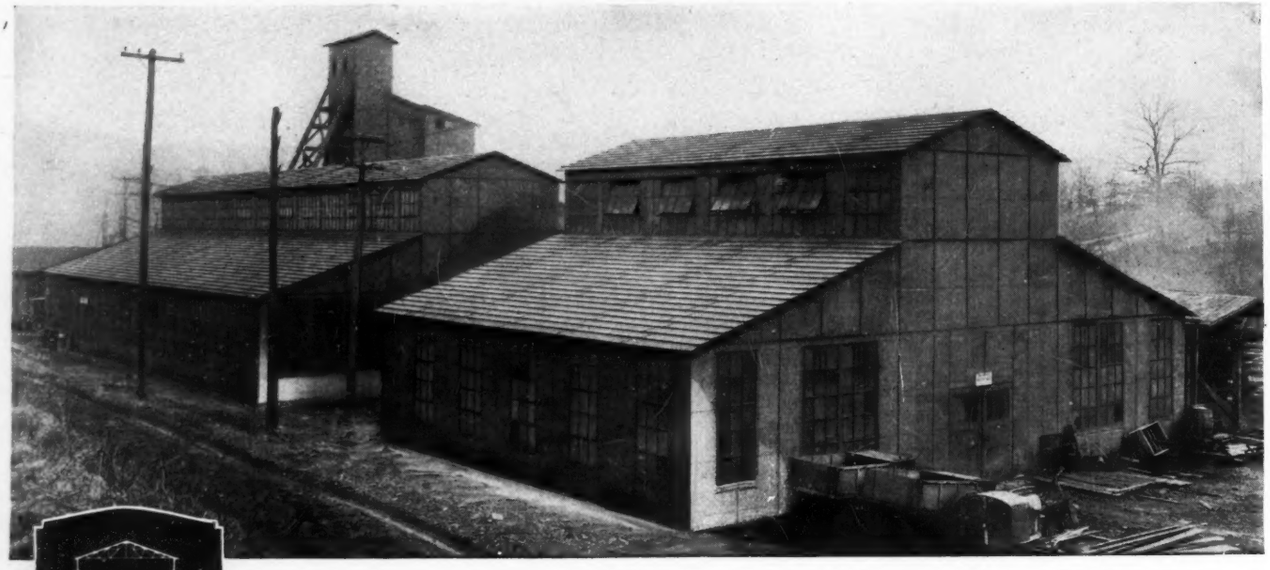

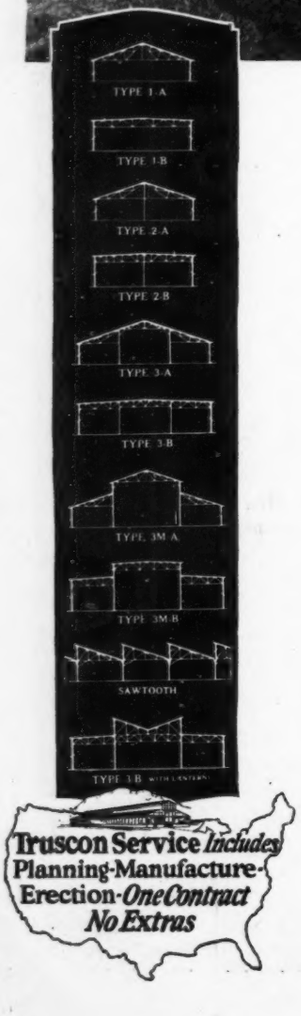

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

Volume 30 — New York, July 15, 1926 — *Number* 3

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This Week at Bluefield!

J. H. Edwards, *Coal Age's* Editor at Huntington, W. Va., will be this week at Bluefield attending the West Virginia Coal Mining Institute and recording for you all that goes on at that meeting. Much has been said about the value of pooling experience and knowledge. That is just what *Coal Age* and the technical press does. Almost every week some one of the editors is attending a meeting somewhere; sometimes there are several meetings; sometimes three or four editors attend a single meeting, and they come back laden with the experience of many minds that have labored on problems somewhat similar to yours.

Every man has slightly different conditions, a background of experience not just the same as yours, a mental slant that gives him an individual viewpoint, a personality of his own, a staff and equipment favoring a certain solution of his difficulty. Out of it all come ideas that are his alone but can be made a part of your mental viewpoint if you listen to him and get his reactions through the pages of *Coal Age*.

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

Volume 30 | NEW YORK, JULY 15, 1926 | Number 3

Seek Opinion of Industry

WHEN any legislation controlling the coal industry is proposed and the coal operator has an opportunity to be on the board by which the change is discussed, he should avail himself of the offer, because by his knowledge of conditions around the mines he can help to prevent unwise action. He can aid in getting before the board the necessary helpful information. The public utilities have taken this view and as a result have been spared much regulation that would have made the conduct of their business difficult. When asked they do not demur but quite readily assent, and even make an effort to place men where their experience and information will be of value.

No More Panaceas

NO "SICK" INDUSTRY has had more practitioners eager to prescribe for its ills than the bituminous coal business in the past decade. Some of the remedies proposed have had real merit; a few were lethal. For the most part, however, the virtues of the beneficial have been argued with more zeal than discretion. Apparently fearful that they might not win attention by claiming too little for their prescriptions, enthusiasts have dulled interest and sharpened opposition by claiming too much. Simple tonics have been presented in the wrappings of panaceas to an industry fed up on cure-alls.

Although the coal trade has shown no disposition to swallow any of the remedies offered, the psychological effect of the constant clamor for a strong and speedy cure has been bad. Too many operators and too many critics of the industry still are waiting for the catholicon which will relieve coal mining of all its ailments over night. The obvious, the prosaic things which must be done if there is to be a permanent rehabilitation are ignored because they are so simple of statement—and so difficult of accomplishment.

The fundamental problem of the bituminous coal industry today is the distribution of its product at a price which will be fair to the consumer and which will yield a reasonable profit to the producer. Strip that problem of all its complexities and the ultimate solution rests with the individual operator. He can solve that problem to his own satisfaction and to his own financial well-being if he knows accurately his costs of operation and refuses to be inveigled or stampeded into selling his coal at a price which will not cover those costs and a reasonable profit.

Of course, the stock objection to so simple an answer is: "I must meet my competitor's price or lose the business. I know my competitor is selling below cost, but I've got to meet his price." But must you? Is it necessary to keep mining at a loss for no other reason than the fear that, if you don't, the other fellow will? Is capacity production at a net loss more desirable than sixty or eighty per cent output at a profit? If one operator wastes his capital assets, must every other producer match him in folly?

There is only one way to make money in business. That way is to sell the product produced at a profit. The fact that there are bituminous operators today who are making a profit proves that knowledge and self-restraint are not without their rewards. It takes courage to resist the temptation to shade a nickel or a dime on the order that is slipping away. Nevertheless there are companies in highly competitive soft-coal districts that have displayed that courage year in and year out. True they have not flooded the market with coal—and they have not been drowned in red ink.

When the industry as a whole gives greater heed to the obvious way out of its difficulties, it will be in a better position to appraise at their real value the various plans put forth to improve the bituminous coal trade. When the industry holds fast to the fundamental law of profitable operation, it can accept and utilize the good features of every scheme which incorporates any beneficial germ and reject the impractical phases of such plans. But there is no substitute for individual responsibility and no hope of effective co-operation without it.

Concentration

AS GENERALLY USED in coal mining, the expression "concentration" means an arrangement whereby, by bunching men or the use of machinery, a large tonnage is produced from a small area in a given period of time. There is another form of concentration, namely, obtaining a large quantity of coal from a small area. In this the tonnage per day from the given area is not considered. All that is meant is that all the coal present or a big percentage of it is sent to market.

The meeting of the Illinois Mining Institute showed how in that state coal was being wasted, making the exploited area of mines far larger than necessary with an excessive expenditure for rails, trolley wire, feeders, locomotives, fans and accessory equipment. Fortunately in Illinois drainage problems are relatively light, or the burden of such incomplete extraction would make the pumping duty unduly heavy.

Coal is left as barriers for stream, highway, railroad and farm support and to reduce timbering and roof-rock handling, but as developed at the meeting other coal is left to prevent bottom clay from being mixed with the coal and a prodigious quantity is wasted by the careless cleaning methods of the miner.

Operators who have to pay the miner the scale rate for clean coal cannot afford to pay that rate and allow the miner to send dirty coal to the surface. It is ex-

pensive enough to haul dirt and separate it from the coal and then throw it away, without in addition paying the miner for mining and loading it, but with machine loaders and conveyors and with equipment that cleans coal relatively inexpensively it may pay to take all that comes and wash out the dirt on the surface.

With longwall methods and conveyors it may be possible, timbering closely, to remove roof coal, and yet handle little roof rock. In this way all the coal will be saved and mines can be planned to exploit a smaller area or to give service for a longer period.

In Illinois there is insufficient concentration, using the term in the sense indicated, and it would appear that in time that state will have to line up with Pennsylvania and West Virginia in an endeavor to obtain large percentages of extraction. In some parts of the latter states, however, there are still opportunities for saving. A larger percentage of coal will be shipped from a given area when the rubbish which is thrown out in the mine is brought to the surface and cleaned with less waste than underground and when the cleaning process in the tipple or breaker is less wasteful than at present.

"Maybes" in Mining

UNCERTAINTIES affect the business of coal production to an unusual degree; as these are gradually removed efficiency will be increased. A foreman on arriving at the mine in the morning often does not know even approximately how many men will be working and how many loafing, fishing, hunting or automobiling. He does not know, at least in most non-gaseous mines, how many men laid off the night before nor how many places remain uncut. He cannot tell in how many places the roof may be working and laying off men. He knows or should know how many places are shut off by gas, but with this condition varying he has an uncertainty that deprives him of the advantage of long-time planning. In many mines he does not know whether the locomotives or the cutting machines will do their work satisfactorily or whether either or both will leave the track at a bad switch, a low joint or a tight gage.

Some of the "maybes" in coal mining are inherent to the work but most of them can be removed by discipline, by striving only for the possible, by inspection and repair, by the keeping of records and by the studying of accidents. Men should come to work whenever the mine runs unless sickness or bereavement interferes. They do it in other industries and should do so at mines. The cutting of places should be according to schedule; men should be there to cut the coal and stay till it is done; the number of places should be within their proper compass; the faces should be cleaned up and ready for cutting; the machines should be inspected and repaired; bits properly sharpened and in sufficient number should be provided; props should be on hand in case the roof should prove bad; the power should be adequate and the ventilation should make it unnecessary to leave a room uncut because too full of gas.

No man in a well-ordered factory wonders if his lathe will work the day through nor questions whether he will get the material on which to work. There are no "maybes" in a good machine shop. Nine delays out of ten in a coal mine might be eliminated if it were clearly realized that the profit of mining is frequently dissipated in "maybes."

A Year of Big Tonnage

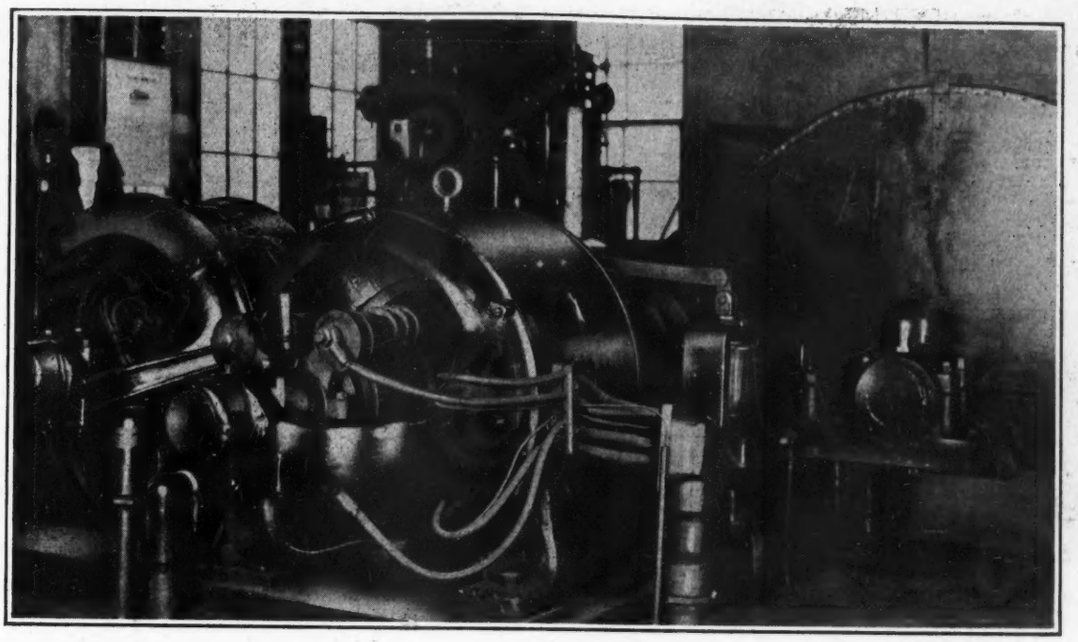
DESPITE "Emperor" Cook's statement, quoted without approval in this week's letter of Paul Wooton, the whole world is not facing a reduction in coal consumption. The United States, for instance, is increasing its sales of coal while decreasing its stocks. The bituminous-coal output has increased, in the present calendar year over the same period last year, 14¼ per cent. This condition is still continuing, for in the week ended June 26 almost 13½ per cent more soft coal was produced than in the corresponding week a year ago when as will be remembered the country was as now in prosperous condition. That does not look like a decline in the demand for coal but like a steady advance in the use of that commodity.

However, the production of anthracite has decreased in the present calendar year because of the suspension of output during the strike. In this calendar year, up to June 26, the production has been 8,069,000 tons less than in the same period last year. As the coal bought before April 1 has little or no effect on the demand for coal in the months that follow, there is really no reason why business in anthracite should be any better this year than in 1925, and there are reasons why it should not be as good. One is the increased use of oil, bituminous coal and coke, and the other the fact that the public, having passed without real discomfort or panic through a winter during which no anthracite was mined, is little disposed to buy coal early or to worry if coal ordered is not delivered.

It is remarkable, therefore, that the sale of coal this year has in recent months exceeded the sale last year. The only possible explanation of the phenomenon is the cold spring, coal being consumed that in other years was not needed. Though the loss in production in the anthracite field for the calendar year to June 26 is 18.7 per cent, the tonnage week by week for some time has been larger than in similar weeks a year ago and in the week ending June 26 was 16 per cent larger than in the corresponding week last year.

Putting anthracite and bituminous coal together the tonnage produced in the calendar year to June 26 is 9 per cent greater than a year ago, and in the week ending on that same date was 14 per cent greater than in the corresponding week of 1925. These figures do not look discouraging. The price of bituminous coal was 4c. a ton less according to the *Coal Age* Index, and therein lies the real gloom. Tonnage is steadily increasing and in that fact there is hope. The week ending June 26 has been taken, in preference to the more immediate week for which figures are available, because it has no public holiday approaching to introduce a doubt as to the representative character of the figures.

THE WORDS "CYCLE" AND "SCHEDULE" seem to be invading the coal industry. They show that the coal-mine manager is recognizing the importance of regulating and balancing his operations. When we have some systems of this sort, we shall no longer tolerate absenteeism, delays and breakdowns that interfere with cycles and schedules. Inspection, repair, uniformity in bits, rules for shooting and timbering will be the inevitable result. In a mine regularity and continuity of operation are essential for low-priced production and large tonnage.



Reserve Equipment Helps to Reduce Power Bills

At a Mine Where Steam Is Kept Up in Case of Power Failure and Where the Load Is Well Balanced, Use of the Reserve Power for Regular Operation Has Proved Profitable

By J. H. Edwards
Associate Editor, *Coal Age*
Huntington, W. Va.

MAINTAINING a steam plant solely as a standby to purchased power is a costly practice and one that is usually otherwise unsatisfactory. Too long a time is required for speeding up the fire and starting the engine or turbine. This sort of plant has been largely superseded by the relatively high-speed internal-combustion engine arranged for an emergency. This either drives the fan direct or through the medium of a generator.

Small boiler plants with engine-driven mine fans, however, continue to be used. The fan may also be equipped so that it can be driven by purchased power, even though it is normally operated 24 hr. per day by steam. If it is a shaft mine without an escapeway the electric hoist may be equipped with a steam engine which can be connected for emergency operation.

At some mines the small steam plant intended for continuous operation of the fan is equipped with a generating unit which serves as a standby to drive the mine equipment which normally operates from purchased power. When this type of installation is being planned it becomes a problem to determine whether it is best to install an alternating-current or a direct-current generator.

At the Exeter mine of the Kingston-Pocahontas Coal Co., near Welch, W. Va., a direct-current generating set of 150-kw. capacity was installed in the steam plant which operates the mine fan. This in itself is, of course, not unusual. The interesting feature is that the generator serves a purpose beside that of a standby. It is kept in continuous operation supplying a portion of the mine power, thus reducing materially the bill for purchased power.

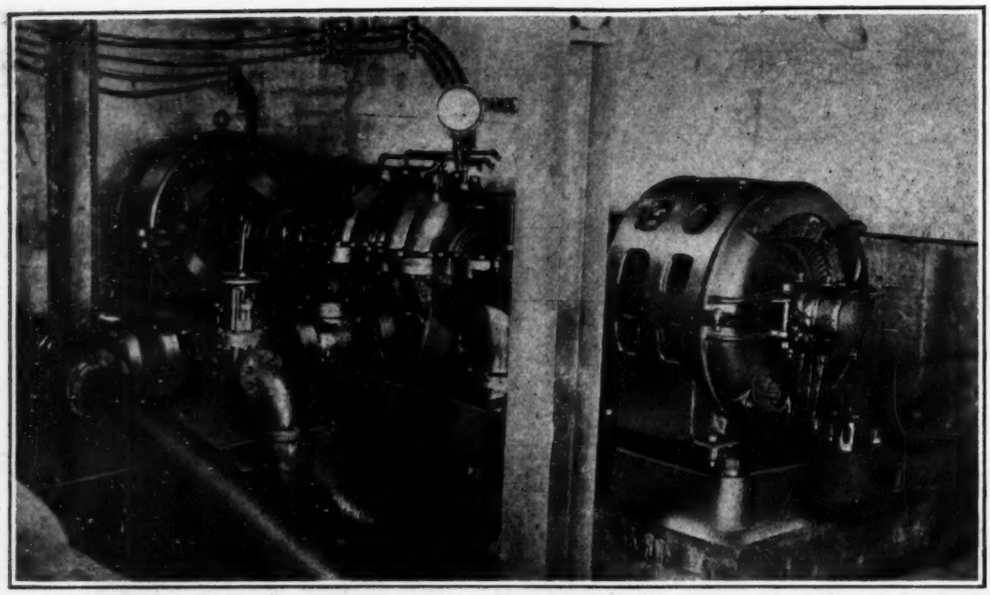
Inasmuch as the plant is operated by one man per shift, the unit cost of energy delivered by the generator is small. The only appreciable items added to the power-plant cost by making the reserve plant assist in carrying the regular loads of the plant are those of the extra fuel, lubricants and repairs to the generating unit. A slight additional expense is incurred for maintenance of the steam-generating equipment, which consists of two 150-hp. return-tubular, hand-fired boilers.

SPREAD WORK TO MAINTAIN LOAD FACTOR

The method by which the day and night loads are divided so as to keep the generating unit at close to full load is worthy of note. The mine is a shaft operation and, except for the fan, is completely electrified. Coal is gathered by storage-battery locomotives which are charged at night from the 250-volt trolley circuit. The depression of 1920 caught the mine in the development stage, preventing the installation of the main-shaft equipment. For that reason the product of the mine is still being hoisted through the auxiliary shaft.

The auxiliary, or man-hoist, which is of balanced

The headpiece shows the two motors of the auxiliary hoist. The 150-hp. alternating-current motor at the left is the regular drive. The reserve, a 75-hp. direct-current motor, at the right, is arranged for connection to the hoist through a square-jaw clutch coupling. In case of trouble with the main motor or of failure of purchased power, the hoist can be operated by the direct-current motor supplied from the reserve plant.



Main Pump

The pump consists of two 1,000-gal. per minute 2-stage units connected in series. The direct-current motor is 175-hp. and the alternating-current, 200-hp. The former drives the pump during the day and the latter at night. This double-motor installation was installed primarily to insure against equipment and power failures, but is being used to reduce the power cost.

single-drum type rated at 17,500 lb. rope pull for a speed of 600 ft. per minute, is equipped with two motors. One is a 150-hp. 2,300-volt motor of the wound-rotor type and the other a 75-hp. direct-current motor. The larger unit is the regular drive and is connected by an ordinary bolted coupling. The other is arranged with a square-jaw clutch coupling which is moved by means of a pinch bar and held in place by set screws.

At the shaft bottom, the main pump, a double-unit, 4-stage centrifugal unit, rated at 1,000 gal. per minute, 165 ft. head, 1,750 r.p.m., likewise is equipped with two motors. The alternating-current unit is a 200-hp. 440-volt, motor and the direct-current a 175-hp. 250-volt machine. Both motors are connected to the pump shaft by means of bolted couplings.

DRIVEN FROM EITHER POWER SOURCE

The double-motor arrangement of the hoist and main pump allows for driving these from the two sources of power, and besides affords a means of drive in case of the remote possibility that both the direct-current generator and the alternating-current motor should fail at the same time. If this should occur, the direct-current motor, driven from the purchased-power substation which contains one 200-kw. motor-generator set, can be used.

As a rule the motor-generator is idle, and therefore might be properly termed the reverse, instead of the generator. The loads are divided as follows:

Leads at Kingston-Pocahontas Coal Co.'s Mine and Power Sources by Which They Are Carried

DIRECT CURRENT (SUPPLIED BY MINE PLANT)

Day
Two trolley locomotives.
Main pump (the 175-hp. motor.)

Night
Coal cutting machines, three crews working.
Charging batteries of four gathering locomotives.
Portable air compressor (not used regularly.)

ALTERNATING CURRENT (SUPPLIED BY POWER COMPANY)

Day
Hoist (150-hp.)
Fresh-water pump (100-hp.)
Six gathering pumps (5, 10- and 15-hp.)
Lighting

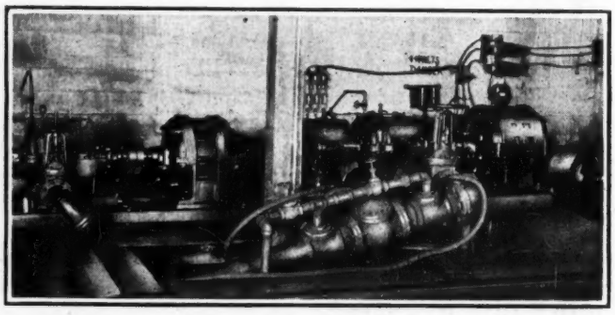
Night
Main pump (the 200-hp. alternating-current motor.)
Hoist (150-hp.; used but little at night.)
Fresh-water pump (100-hp.)
Six gathering pumps (5-, 10- and 15-hp.)
Lighting.

It will be noted that the main pump is switched from the direct-current to the alternating-current circuit at night. This is necessary because at that time, although the locomotive load drops off, two extra direct-current loads, those of cutting and battery charging come on. Generally speaking, the day and night loads on both circuits are kept nearly constant.

The main pump was not installed with the idea of switching frequently from one motor to the other, therefore the pumpman has to remove the bolts from one coupling and replace the bolts in the other when making the change.

The fresh-water pump, mentioned as constituting a part of the alternating-current load, furnishes water to the entire city of Welch. The supply comes from a water ring in the auxiliary shaft.

Although this system of utilizing the fan and reserve plant up to its full capacity represents, at Exeter, only the grasping of an opportunity brought about by a combination of circumstances, it suggests that perhaps the ultimate plans of many mines should include a permanent scheme of the same kind.



View on the Other Side of the Main Pumproom

At the left is a 100-hp. 500-gal. per minute pump; in the center a 200-hp. 1,000-gal. pump, and at the extreme right a smaller 3-stage pump. These three pumps are equipped with alternating-current motors only. One of these pumps supplies water from a shaft ring to the entire city of Welch. Power for the large alternating motors in the main pumproom, as well as the gathering pumps, is brought down the shaft at 440 volts.

Many operators continue to prefer steam equipment for fan drive at gassy mines. As the operating labor is one of the large items of expense of such a plant, the idea of loading the plant as much as possible without extra labor cost, is attractive. As is demonstrated at Exeter, the installation of the proper equipment makes it possible to divide the load advantageously between the purchased power and the steam reserve plant.

Present Problems of the Anthracite Engineer And Some Suggested Solutions

With Increased Competition and Growing Production Difficulties the Anthracite Region Calls for Greater Reliance on Engineering—The Highway to Cheaper Production Is Not the Much Traveled Road of Past Practice

By E. J. Gealy

E. J. Gealy

AT NO TIME in the history of the anthracite industry have its affairs been more generally and heatedly discussed. Most of the literary effort that has accompanied this discussion has emanated from people only remotely associated with mining and not all of it by any means has been taken seriously. Nevertheless, the silence of operating officials is no proof that the industry is not facing a period full of perplexing market, economic and operating problems.

In the last few months many changes of great importance to anthracite engineers have developed. These are of such moment as to demand careful analysis.

The stand taken by anthracite operators against wage increases of any kind during the recent strike clearly indicates a keen consciousness that the selling price of anthracite cannot be raised without exerting an adverse effect on its markets. In taking this position the operators won the favorable opinion of the public, and they now quite naturally feel that to keep faith with those who showed their confidence they must make every effort to provide a regular supply of high-grade fuel at as low a price as possible.

For the last twenty years, in spite of the steady increase of fuel consumption, anthracite production has practically ceased to advance. Bituminous mines have supplied most of the additional demands for coal and have expanded both in number and capacity by leaps and bounds. By producing large tonnages bituminous operations have reduced their costs per ton to extremely low figures.

Last year's production of anthracite was 26,000,000 tons less than that of 1924. Bituminous coal, coke and oil made large inroads upon hard-coal markets. It will be difficult for the anthracite industry to recover this lost ground. Another important drawback to the satis-

Article read before the Engineers' Society of Northeastern Pennsylvania, at a meeting held in Wilkes-Barre, Pa.

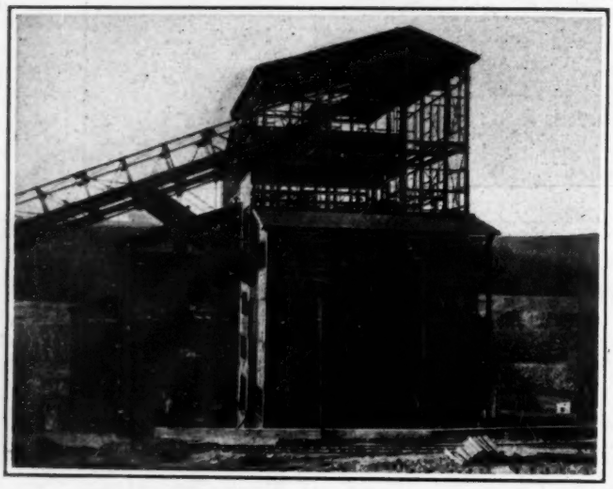
The conveyor shown in the headpiece is located in a bituminous mine in Virginia. The day is not far distant when we will saddle onto the generator in the power plant the work that has been performed by the human back for centuries.

factory operation of the anthracite industry is the lack of sufficient labor to man the breakers and mines. One reason for this is the greatly reduced number of foreign workmen admitted to this country under the new laws regulating to immigration. Another is that the native born are unwilling to perform mine labor.

WAGE DIFFERENTIAL MUST BE MET

Another difficulty arises from the fact that the anthracite industry is, as we all know, almost entirely unionized and pays a high wage to all who are employed in it. Latest reports show that between 70 and 75 per cent of the coal produced comes from non-union mines or in union mines working under "special co-operative arrangements" where conditions are favorable for the production of coal at lower costs than in union mines.

Bituminous coal is, moreover, gaining many other natural and competitive advantages over anthracite. Today soft coal is coked in such a manner that the price obtained for its byproducts permits the sale of



Modern Breaker in Process of Construction

By adopting modern and up-to-date methods the company that built this breaker during the recent strike continues to make a fair profit. It is now seeking leases from its neighbors, some of whom are losing money through the operation of antiquated equipment.

the coke itself at rates less than those realized for the domestic sizes of anthracite. At these coking plants gas is sold to public-utility companies, tar is produced that can be used for road compounds and the ammonia evolved is utilized for the manufacture of fertilizers. Furthermore, recent experiments in low-temperature carbonization of bituminous coal have led many scientists to predict that our future supply of motor fuel may eventually be derived from this source.

Though all these developments point to greater prosperity for bituminous-coal companies, the problems confronting the anthracite coal company continue to multiply. Even now these conditions are increasing the competition of soft coal with small-size anthracite and permitting the sale of byproduct coke in the markets once served by domestic grades of hard coal.

Anthracite-mining conditions also are becoming more difficult. The industry has reached a point where much of the most easily mined and best-grade coal already has been extracted. Future mining must be in deeper, thinner, and more irregular beds. With longer haulageways, more extended workings and greater quantities of water and refuse to handle, more equipment and engineering service will be required.

Then again, the production of anthracite involves preparation processes which must be modified to meet the poorer qualities of coal delivered from the mines. New preparation plants must be so designed as to prevent excessive breakage, reclaim larger percentages of coal from waste materials and deliver a clean product. With all these factors exerting their influence, it is plainly evident that the industry is facing some of the greatest problems in its history.

It is indeed difficult to enumerate and classify these problems. Careful examination shows that they all simmer down to the production of a clean fuel at low cost. Obviously, the future success of the industry depends upon its engineers, and they must exert every influence to prevent adverse mining conditions from being reflected in higher selling prices.

That coal companies are realizing the importance of their engineers is evidenced by their growing tendency to shift the center of gravity of management to a point where he is given a place in the direction of operations. It is only by such means that modern and improved methods will be quickly recognized and applied.

Today "sitting tight" does not necessarily mean "sitting pretty." Marking time in reality often signifies going backward. Delayed modernization entails early impoverishment and eventual wholesale expenditures. Modernization is a continuing process. Only the industry that is ready at all times to scrap something good in order to adopt something better can hope to be permanently successful.

MEET DIFFICULTIES BY ENGINEERING

More than ever will the managements of the future refuse to permit themselves to believe that the cost of their product is wholly governed by "uncontrollable" factors. Thickness, position and accessibility of seams, union wage scales, freight rates and the like will always be important considerations, but they will not be permitted to stand in the way of profitable management. Only when an industry has learned to look upon its difficulties as obstacles to be surmounted and not as "legitimate" excuses for a mediocre product or service, can it be said to have borne its full share of responsibility toward the public on the one hand and those who have invested their money in it on the other.

If the anthracite industry has been declared back-

Future Fuel in Storage at Boiler Plant

A coal pile at the Lykens plant of the Susquehanna Collieries Co. This "slush" is pumped to the plant, dewatered, stored, reclaimed, dried, pulverized and burned in suspension. Power is thus generated from an unsalable product. No wonder the cost is low!

ward, perhaps it is only because it has been measured by a new yard-stick of efficiency. Possibly the unusual records of progress and elimination of wastes made by the public utilities, bituminous-coal companies and other industries are the new criterions by which its performance has been gaged. Whatever the past may have held, the needs and opportunities of the anthracite industry demand that it must share in the great mechanical and electrical developments of the present day.

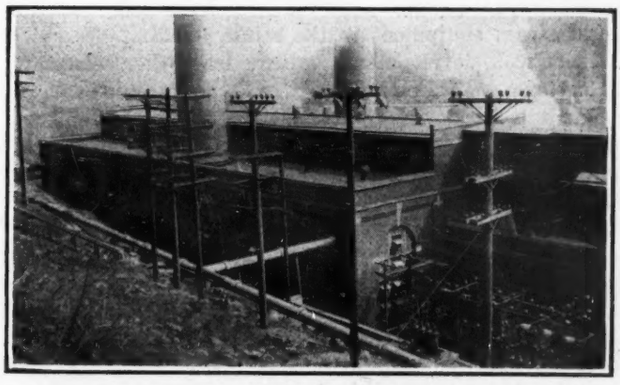
In the new era, already turning the corner, engineers will shoulder new and larger responsibilities, and many are preparing themselves by learning the language of the financier. This is highly essential, because present-day business and financial methods have proved that unless the engineer knows how to "sell" his ideas from a dollars-and-cents point of view, he is lost.

Engineers Should Assume Leadership

Never was it so important, as at the present moment, that engineers study their own industry, attend the sessions of their respective technical societies, read, write and keep up-to-date concerning problems and new developments.

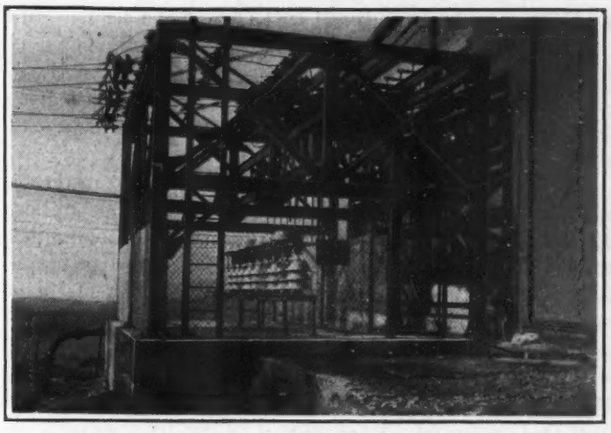
It is necessary that anthracite engineers band themselves into a strong outspoken group, ready at all times to exchange ideas and challenge erroneous statements made by outsiders. In the past much harm and injustice has been done the anthracite industry by its own internal and external aloofness.

To those who are following the developments in both the bituminous and anthracite fields there is a marked difference between the two in the manner and promptness with which they set themselves right with the public and the technical world. Not long ago certain uncomplimentary statements were flung at the bituminous industry by some prominent engineers. Soon afterward we were pleasantly surprised to learn that representatives of the largest bituminous companies in the country were holding a joint session with the national engineering societies in New York City. At this meeting prominent mining men such as Eugene McAuliffe, of Omaha, Neb., president of the Union Pacific Coal Co.; W. K. Kavanaugh, of St. Louis, Mo., president of the Southern Coal and Coke Co.; Colonel Edward O'Toole, of Gary, W. Va., general manager of the United States Coal & Coke Co., and others addressed the meeting or delivered papers. Although this meeting may not have been called for the purpose of answering the statements made against the industry, no one could have left it feeling that these men were not doing everything possible to make their mines as safe and efficient as modern engineering could render them.



Lykens Power Plant Produces Power for Less Than One Cent per Kilowatt-Hour

Here the Susquehanna Collieries Co. is burning pulverized anthracite slush, thus efficiently utilizing what has heretofore in most cases been an unsalable or waste product. The cost of manufacturing power above stated includes all charges.



Utility-Type Power-Distributing Station

Electric energy is especially adapted to generation in large units and utilization in small ones. This illustration shows the distribution tower at Lansford, Pa. It performs much the same function for the power system of a colliery as is accomplished by a ganglion in the nervous system of the body.

For many anthracite engineers the last decade has been an era of experimentation and data collection. Almost everyone has played an important part in developing some new and more efficient practice or has paved the way toward the realization of big savings. Everywhere there is a keen desire to put these into practice. Operating cost data now available from installations already made reveal where some unusual economies can be effected. In many instances immediate reductions in operating costs would result from their adoption. The success of these developments has already been proved, and returns on investments have been most gratifying. All that seems necessary now is the more general recognition of the facts and the quick adoption of the new ideas.

The results obtained by a few recent installations of new equipment prove the foregoing statements. Thus by the expenditure of about $142,000 for a few electrically operated pumps and hoists at one of its many mines, one large company found that a saving of about $100,000 a year is being realized. Another company, a small independent in the southern anthracite field, previously well equipped with both electric and steam drives saved 25c. a ton by complete electrification. Still another firm, formerly using steam-driven equipment saved between 35 to 40c. per ton by electrification.

Breaker Saves $1,000 a Day

A new breaker, just completed, has been so designed as to save $1,000 a day over its predecessor. And another similar structure, handling coal from unusually irregular beds is making a saving of $10,000 a month. Incidentally, the company operating this last mentioned colliery is quite anxious to obtain leases from adjoining properties that are now losing money. It is significant to note that such an arrangement guarantees a royalty to these nearby companies and saves them the loss they are now sustaining from the use of obsolete equipment. These are only a few examples, but the interesting point about them is that the results obtained can be

duplicated in practically all sections of the field. Furthermore, by the pooling of various methods, now successfully used at only a few individual operations, there are quite definite possibilities of every anthracite company reducing its operating costs by substantial amounts.

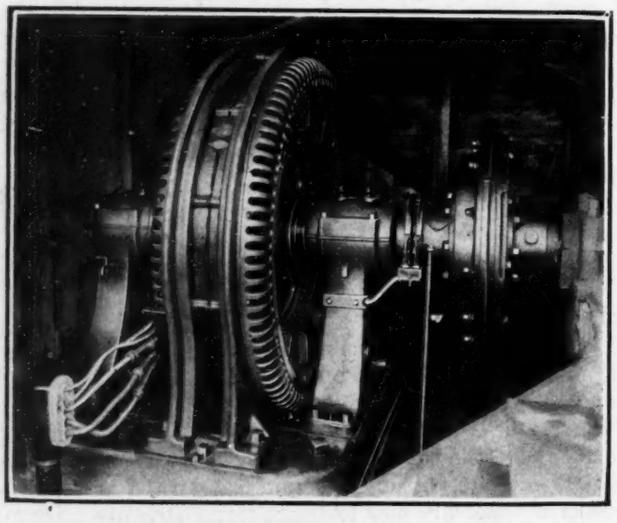
During the last few years wonderful improvements have been made in the operation of bituminous mines. By drawing from the experiences of these companies and from those of various industries with large material-handling problems many other cost-cutting methods can be either adopted or developed.

New coal-cleaning systems and material-handling equipment, recently introduced in the anthracite field, most surely hold many opportunities whereby costs may be greatly reduced. Even now it is hardly visionary to assert that every anthracite breaker that has not been built within the last five years will either be rebuilt in the next ten or be out of the running. Modern coal-cleaning methods are revolutionizing the design and operation of these structures.

The unusual profit-producing advantages already proved by electrically-driven mining equipment have left no room for doubt regarding the better efficiency, greater reliability and larger success of motorized apparatus. Much conclusive evidence of this fact has been gathered throughout the region. Wherever electricity has been applied, steam-driven apparatus has been relegated to history. Everywhere, even after giving due consideration to mining conditions, there is a direct relation between profits and the quantities of electrical energy used. Electricity means modernization, and modernization spells success; whereas, isolated steam plants with long transmission pipe lines definitely indicate losses.

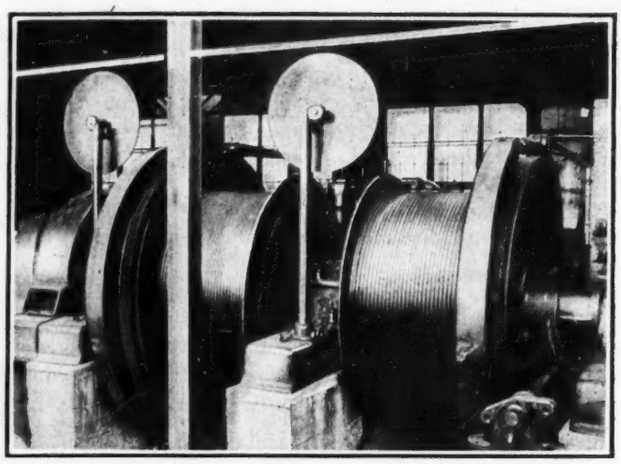
WASTE WITH STEAM POWER

Data collected by one large company having some of the best types of small isolated power plants in the field, show that in most instances from three to six times as much steam is consumed in actuating direct-connected steam-driven apparatus as is required to generate the electrical energy necessary to do the same work. Abandonment of isolated power plants has saved large quantities of marketable fuel and at the same time eliminated the difficulties of water supply.



Reducing the Power-Factor Penalty

Synchronous motors are not only capable of performing many of the tasks encountered about a colliery but also possess the ability to correct a lagging power factor, which means a better or more efficient utilization of the energy generated. One of their inherent weaknesses is a low starting torque, but the difficulties encountered from this source may be overcome by a magnetic clutch such as that connecting this machine to its load.



Small Double-Drum Mine Hoist

Hoists may be either big or little, but in either case unless their power is excessive compared to the total mine load they can in almost every case be driven more economically electrically than by steam. Many shaft hoists in the anthracite region yet remain to be electrified.

Another company that made investigations along the same lines found that at one of its mines alone it was using in the boiler plants a quantity of salable fuel equal to 33 per cent of that shipped to market.

Not many years ago it was believed that well-preserved steam-driven machinery could not be replaced economically by modern equipment. Under the present stress for saving it takes a courageous man even to argue from this premise. In the bituminous region the Old Ben Coal Corporation recently borrowed millions of dollars to replace with electric drive some of the finest steam equipment in the mining field.

Electrical developments which lend themselves to reductions in operating costs are many and varied. Haulage by trolley and battery locomotives has replaced mules. Permissible battery locomotives remove most of the danger due to electric sparks. Power tanks permit the use of mining equipment in gaseous places. And mine cars fitted with anti-friction bearings reduce power requirements and maintenance costs. Skip hoists employing tried and tested control apparatus speed up outputs at much less risk and danger than is encountered with steam. Ward-Leonard and Ilgner-Ward-Leonard controls minimize peak power demands and lower costs on large shaft-hoist installations.

Electric shovels permit highly efficient operation of strippings with less delay due to breakdowns and lack of fuel or water than is entailed with steam operation. Pumps equipped with automatic controls of various types eliminate manual attendance and assure better, cheaper and more reliable operation at low maintenance costs. Vertical pumps and submerged pumprooms prevent costly losses from mine floods.

OIL BETTER THAN STEAM STANDBYS

New types of fan drives supply definite or variable quantities of air at low power costs and good power factors. Auxiliary oil- or gas-engine drives provide positive ventilation during emergencies, thus obviating large inefficient and costly stand-by steam-power plants. Automatic direct-current and alternating-current sub-

stations eliminate labor charges and power losses because they can be located wherever load conditions dictate.

Electrically-equipped coal breakers provide a continuity of material flow by means of flexible motor control and magnetic clutches. This results in a uniformly high-grade product. Large power-generating units develop electrical energy from unsalable fuel. At some plants power is generated at a price as low as one cent per kw.-hr. or even less.

In the new scheme of things, systems of mining may have to be changed to accommodate new methods of blasting, loading and conveying. In this connection it will be necessary to approach suggested changes with the idea that production and mine operation are most successful when based upon analyses of the new economic conditions rather than upon traditional methods.

Heretofore, gob has been handled and disposed of inside the mines resulting in the loss of much coal; perhaps the day has arrived when this material should be loaded out and cleaned. It may also be necessary to change our ideas regarding rooms and chambers. We now think of them as the places from which we obtain coal; later we may learn to consider them merely as locations for loading and conveying machines.

Concentration Needed for Economy

Breakers and washeries are already being consolidated. Similarly, concentration of mining may soon be necessary. Mining from scattered places now involves prohibitive outlays for mechanical face equipment. Concentrated mining may be necessary to render it economically possible to use new types of expensive labor-saving machines for cutting, loading and conveying purposes.

Thus it follows that now, as never before, the success of the industry depends upon its engineers. Reduced labor supply and adverse mining conditions have forced costs of production to the point where they cannot be permitted to rise further. Other conditions may have been governing factors in the past, but today the situation is quite different. Engineers who grasp the opportunities and solve the difficulties of today will be the leaders of tomorrow. The field is wide and open.

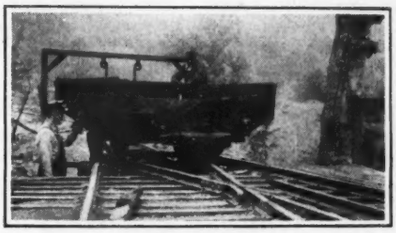
Make Self-Propelling Dump From Old Locomotive

By W. J. German

Explosives Department E. I. du Pont de Nemours Co., Huntington, W. Va.

An old electric locomotive with a gathering reel is being used by the Clinchfield Coal Corporation, of Dante, Va., for the dumping of rock. An established method of dumping is to run a car onto a turntable truck, run the truck out on the dump by the main strength of two or more men, turn the turntable in the direction desired and then release the catch that holds the dump horizontal permitting the dump to pitch forward and discharge the rock over the edge of the rock pile.

It is quite a satisfactory plan but the turntable car is quite heavy and the labor of pushing it is considerable. This dump must be made strong and therefore heavy, the turntable is not light and the dumping mechanism added to the weight of the car and its load makes the propulsion of it a job not for human muscles but rather for some form of mechanical power. Recognizing that the pushing of a load such as this is too much for men to undertake, the Clinchfield Coal Corporation has electrified its turntable car and it has transferred a device of questionable value into a real assistance in the work of dumping.

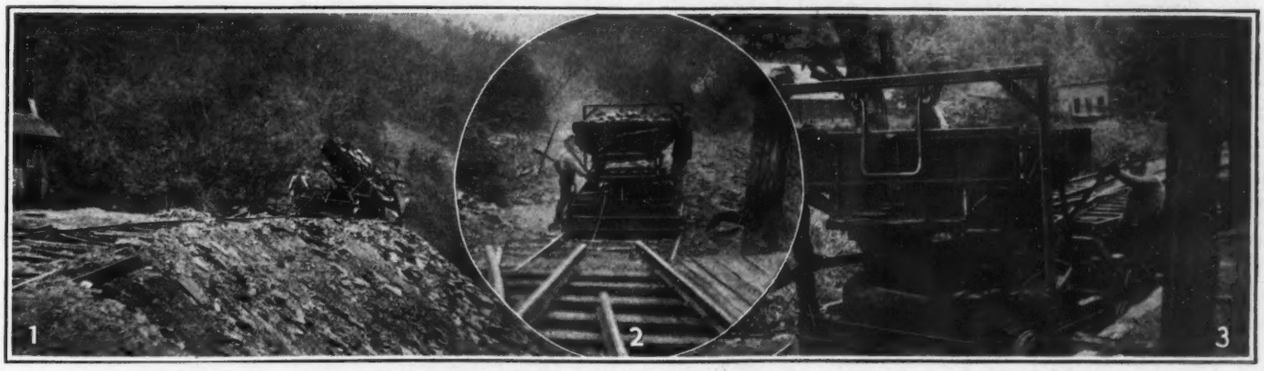


Empty Returns to Sidetrack

The car is on the upper level. The gallows frame seen back of it is part of the turntable car which has just been relieved of the empty and is awaiting a load.

The rock cars are switched out of the coal trip onto a grade which is just right for the moving of them by gravity along the upper level of the rock pile to the electrically propelled dump. The turntable truck carries its own gallows with a stirrup that catches and lifts the endgate when the dump is released. Thus the action of tripping the dump opens the endgate, and the discharge of the rock is practically automatic. Two men can dump 100 cars over this dump in a shift.

As power is used to propel the dumping truck along the dump it is possible to keep the embarking point for the cars at a distance from the end of the dump and at a point where the rock has settled thus making it possible to keep tracks to grade.



How Rock Is Dumped by Clinchfield Coal Corporation

(1) Shows the rock pile and the car discharging from the turntable truck. As the car is high the discharge is free and throws the rock well away from the track. (2) Shows a loaded car traveling away from the point of embarkation to the end of the dump. The truck is electrically propelled receiving current through the conducting cable seen trailing behind it. (3) Shows car unloaded and ready to transfer to empty track at upper level. Two tracks, one empty, one loaded, come to the landing.

Zeigler Mine Planned to Be a Thousand Years Ahead of Its Time

Fig. 1 Shows Prairie Land Before Mine Was Opened in Spring of 1903; Fig. 2 the Sinking Gang at the Main Shaft, the First Coal Pit Constructed in Franklin County, Illinois.

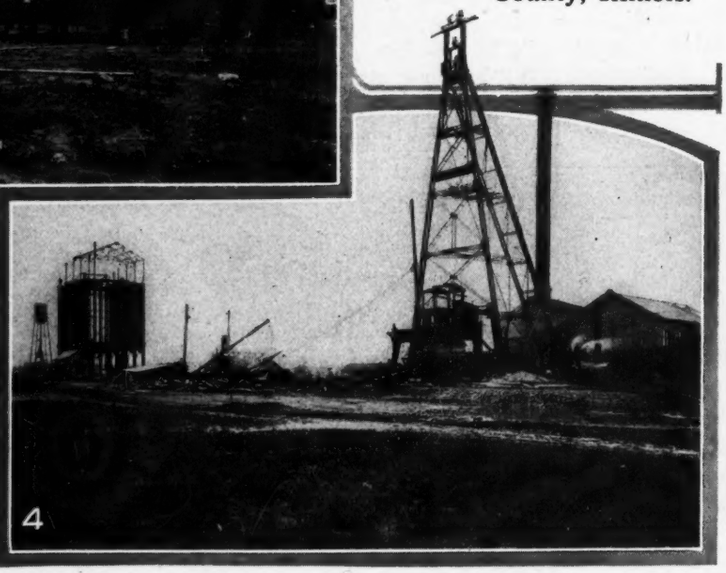
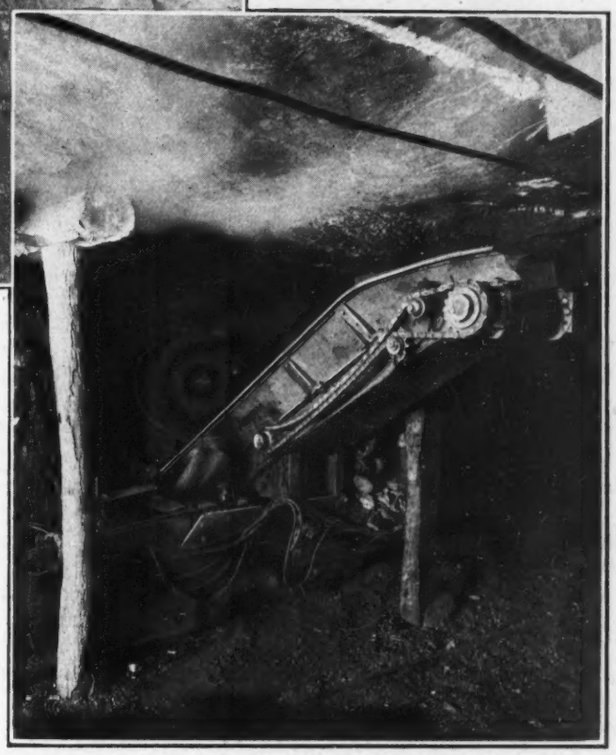


Fig. 3 Shows Miners' Houses at Zeigler, the first built in Franklin County; Fig. 4 Is a Picture of the Plant in Course of Steel Erection.



On Left May Be Seen a Conveyor Running Empty, Hydraulic Jacks and Collapsible Cribs. In Practice the Coal Keeps Falling on the Conveyor in Large Lumps That Have to Be Sledged. Below, Delivery End of Machine That Has Been in Operation at Gary for Many Months.

O'Toole Cuts, Loads And Props Roof Mechanically

With Machine Only One-Tenth of Powder Formerly Used Is Needed—Slack Proportions Decreased 15 Per Cent—Cutter Chain 50 Ft. Long and May Be Made Longer—Cuts 2-in. Kerf —2.5 Tons Produced per Man-Hour

BECAUSE of the scarcity and high cost of mine labor the coal industry in general is being forced to the use of machinery. The selection and proper application of such equipment will require the careful consideration of both mechanical and mining engineers—mechanical engineers to develop and perfect the machinery itself and mining men to reorganize the mines and its underground practices so as to derive maximum advantage from the equipment evolved.

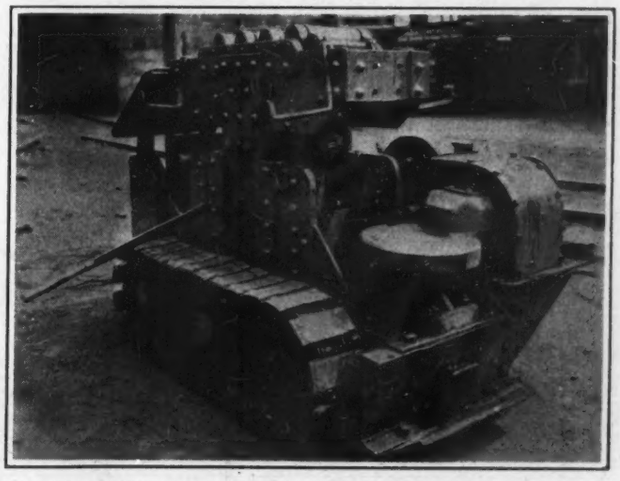
A piece of new machinery which I have devised and had in operation for some years in the mines of the United States Coal & Coke Co. both cuts and loads coal. The benefits and advantages derived from the use of this device may be briefly enumerated as follows.

It will increase the quantity of coal coming from any given extent of open territory because it will concentrate and intensify operation. It will decrease the hand labor necessary for the production of each ton of coal. It will increase the hourly production of coal per face worker.

It will enable the men employed in the transportation department to increase the quantity of coal moved per man per hour, because it will substitute conveyors for the present unsatisfactory means of transport.

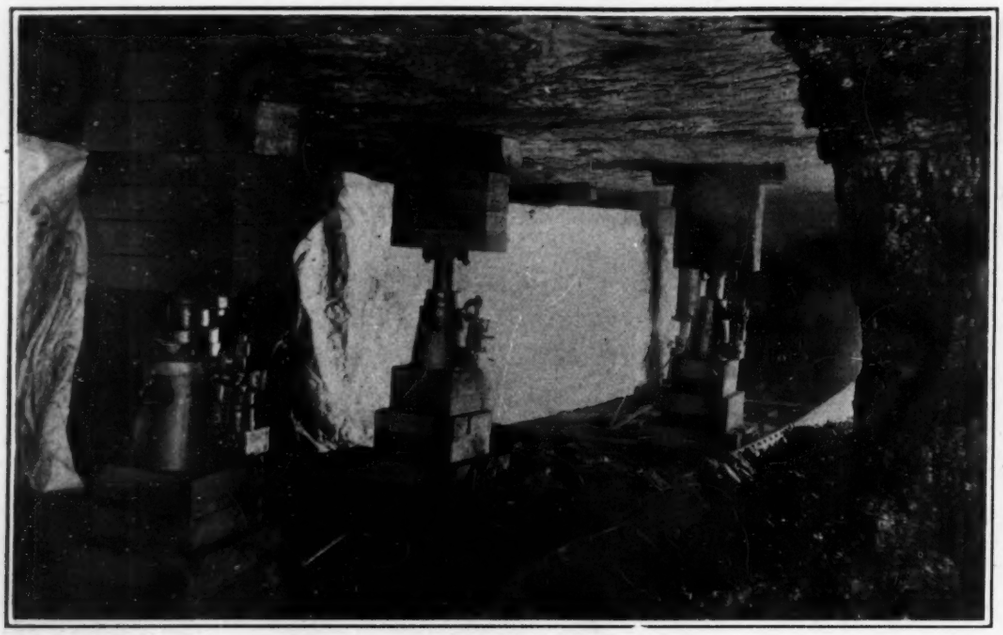
It will reduce the volume of air needed for the ventilation of the mine because less open spaces will be left

Conclusion of a paper read by Edward O'Toole, General Manager, United States Coal & Coke Co., Gary, W. Va., entitled "An Experiment in Combined Cutting, Mining and Loading in Coal Mines," presented before the Materials Handling Division of the American Society of Mechanical Engineers at the request of the National Coal Association. Previous items appeared April 22, pp. 570-571 and May 13, pp. 672-673. These detail not the machine but general mining conditions that call for the application of machinery.



"Tank" for Mine Service, a Roof-Control Machine

Controlling the roof is the most difficult part of machine mining. It presented such obstacles that this roof-control machine has been developed. It is power-propelled and runs on caterpillar trucks. Its top can be raised and lowered to suit local conditions.



Holding the Roof

Only hydraulic jacks were being used as roof supports when the photograph, from which this illustration was made, was taken. These jacks are arranged in three staggered rows, somewhat resembling the five spots on dice. As the machine moves forward the jacks in the last or rearmost row are taken out and moved ahead one at a time. The unsupported roof span is thus kept comparatively short.

to be swept by the air current. Less timbering will be required because less space must be kept open. In like manner, less drainage will be necessary because of the decreased open space.

The machine will increase the coal tonnage produced per ton of timber and other supplies consumed. It will increase (by about 15 per cent) the proportion of lump coal produced, because of the absence of the pulverizing effect of explosives. This will be accompanied by a corresponding decrease in the smaller and less valuable sizes. It will reduce the hazard of coal mining, both from catastrophies which involve large numbers simultaneously as well as from accidents involving individuals, because all the men employed will be under closer supervision and will work in places that can be well lighted.

The first experimental machine of this type was put to work on Nov. 30, 1923, and has been operated continuously ever since. Experiments have been conducted with it as a cutting machine, as a loading machine, and as a combined cutting and loading machine. Strange as it may seem, this device requires less power for its operation when cutting and loading than when loading alone. Inasmuch as it was primarily intended as a combined cutting and loading machine, it is normally so operated.

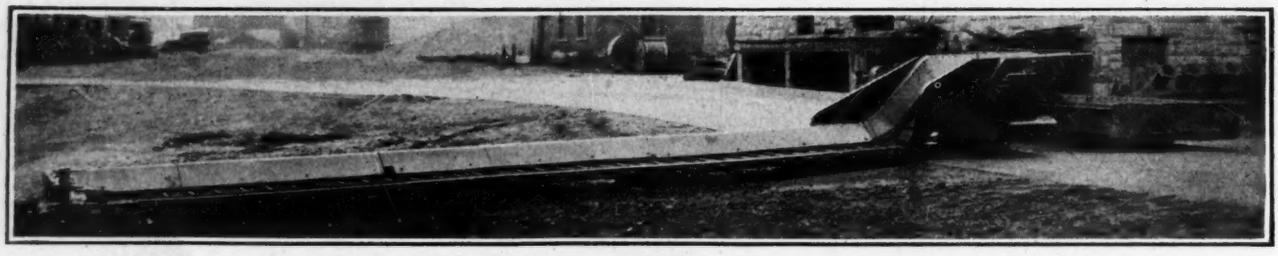
This machine has been employed on ribs, stumps and slabs. Where it has been operated up to the present time the bed of coal worked is about 7-ft. 6 in. thick and lies practically flat. It is believed, however, that the machine can be adapted to mine all the coal in any bed from 2½ to 12 ft. thick and lying at all angles of inclination from horizontal to vertical.

From the date upon which this machine was put to work up until the end of February, 1926, the elapsed time totaled 15,147 hr. Throughout this period the machine was either in operation in cutting or loading coal, or both, was undergoing repairs, or being moved from one place to another, or was stopped on account of roof conditions or for various other reasons. The percentage of the time occupied by each of the causes of delay was as shown in the accompanying table:

Machine Delays Occurring Between Dec. 1, 1923 and Feb. 28, 1926

Cause of Delay	Hours Lost	Percentage of Delays
Electrical equipment failures	726	7.3863
Mechanical failures	1,679	17.0821
Roof control	4,077	41.4793
Miscellaneous (delays in other departments over which machine crew have no control)	3,347	34.0523
Total	9,829	100.0000

It should be noted that 24.4 per cent of the delays arose from electrical and mechanical failures. This is not unusual in an experimental machine. However, it should also be noted that the chief cause of delay with this equipment was on account of the roof, that is, the moving and resetting of timbers. These operations gave much trouble at first, and were thought by many to constitute an insurmountable difficulty. Means were devised, however, of successfully controlling the roof movement, and later a machine was developed by which the roof could be controlled, the aim sought being helped



New Machine Assembled and Ready to Be Taken Underground

This is a late model of the combined cutting-and-loading machine designed for operation in a comparatively thin coal bed. The bar makes a 31-ft. cut and the total height of the conveyor at the back is 12 in. Although intended for use in a level measure this machine is capable of operation on appreciable pitches. The segmented conveyor makes it possible for the machine to follow marked inequalities in the mine floor. Flexibility of this kind is essential with rolly coal.

Collapsible Cribs Replace Jacks as Supports

In this view the jacks have given way to collapsible cribs. In effect this device is equivalent to a jack over which it has, however, certain obvious advantages. Thus it is cheaper and may be moved more rapidly as it may be collapsed or extended more quickly.

by the rapid advance attained by the cutting-and-loading machine, the concentration of the workings and the complete extraction of the coal. This device also reduces appreciably the quantity of timber that must be used and the labor that is required to put it in place.

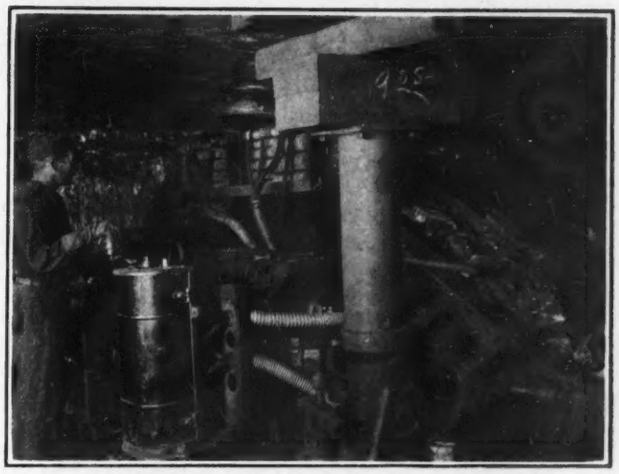
The cutting-and-loading machine is built of structural steel shapes, chiefly plates, bars and angles. It is made in segments or sections varying in length up to 20 ft. The present machine is only 50 ft. long, but it is believed that a machine, 100 ft. long or as long as it is possible to drive a drag conveyor, could be built and operated. The chain that cuts the coal travels in a horizontal loop around the frame. The other chair, which with its bars forms the conveyor, travels around the frame in a vertical loop.

In the month of February, 1926, the men operating this machine produced 2.476 tons of coal per man-hour. Those working by the old method in the same mine produced 1.88 tons in the same unit of time. This rate, however, is extremely high for the old method of operation. Few, if any other, mines in the United States reach this rate of production, but nevertheless these figures show that the efficiency of the men per hour has been increased 0.596 tons or 31.7 per cent.

The following are some of the best records made by this machine: Best one-hour's run, 63 tons; best continuous 8-hr. run, 318½ tons; best continuous 16-hr. run, 518 tons; best continuous 24-hr. run, 672 tons; best continuous 48-hr. run, 1,274 tons; best record for one month, 9,958 tons.

In the mine where this machine is used, in ordinary operation, that is, undercutting, shooting down and loading out by hand, 1-lb. of explosives is required for each 7.3 tons of coal produced. With the cutting-and-loading-machine method, 1 lb. of explosive on the average is sufficient to bring down 75 tons of coal, or about ten times as much. This means that the hazard from this source is reduced proportionately.

Many improvements are being incorporated in a new type of machine which is now being constructed.



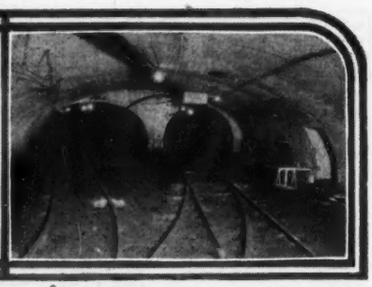
Driving Head of Cutting and Loading Machine

Adequate power is essential in a machine of this kind. This shows the power unit of the new loader. As will be observed all wiring is inclosed and all parts are heavy and strong. The entire machine including the head is fed forward into the coal by means of power-driven jacks or thread bars that pass through the bases of the hydraulic jacks supporting the roof, one of which may be seen in the foreground.

Single Collapsible Crib in Raised and Depressed Positions

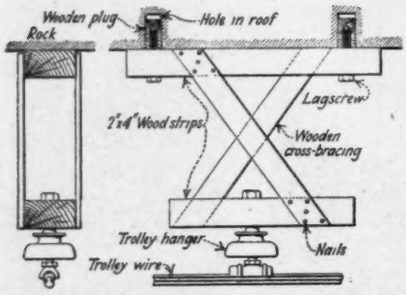
Several different forms of collapsible crib have been tried. The angle at which the two parts meet is an important consideration and can be determined only by experiment. Both screws and chains have been utilized to bring the two parts to their proper place but the chains are the more rapid in their action—a feature that is extremely desirable.

Underground Operation



Wood Frame Forms Suitable Trolley-Wire Support

At points where the roof in haulways and entries is higher than usual a number of insulated trolley hangers are frequently screwed together in a series to form the necessary extension from the trolley-wire clamp to the roof. This practice is wasteful, to say the least. A more



Trolley-Wire Support for High Roof

A 2x4 in. wood strip is fastened to the roof by means of two bolts or lag screws. A similar, but usually shorter piece, is suspended from this upper one by means of crossed wooden strips nailed onto the sides as X-bracing.

common method, and one that is generally satisfactory, is to make the extension with a piece of ordinary pipe.

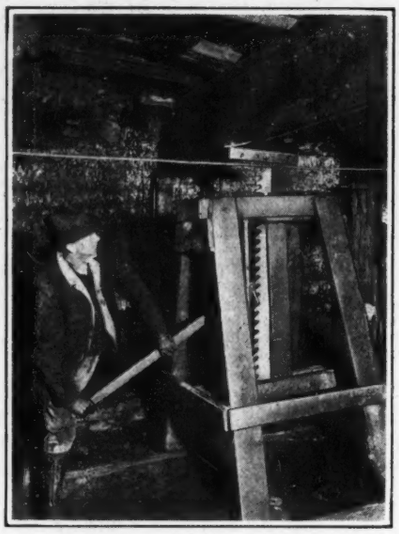
Another method, and one that is widely used in the mines of the United States Coal & Coke Co. at Gary, W. Va., has proved to be quite satisfactory and is far cheaper than using a number of insulated hangers. This trolley extension is shown in the accompanying drawing. A piece of 2x4 or 2x6 is fastened to the roof by means of two lag screws or expansion bolts. Another piece of approximately the same length forms the bottom member to which the trolley hanger proper is attached. These two pieces are fastened together by means of boards nailed to their sides and crossing each other near the middle thus forming an X-brace.

This all-wood extension, although requiring two roof holes, is one that can be built at the point of erection, the only tools required being a saw and hammer. These hangers may be made of such lengths as will accommodate one or more points of trolley support as desired. They are comparatively cheap to construct and quite rigid when in place.

Jacks Make Beam Placing Easy

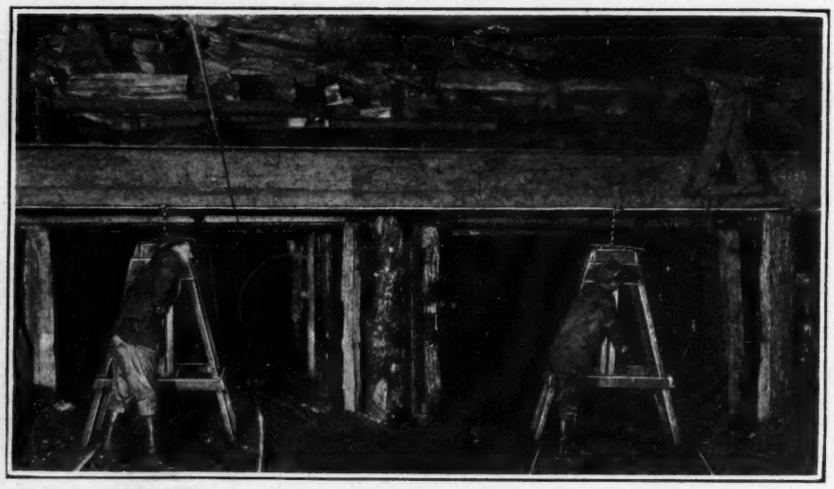
Raising a heavy steel or wooden beam into place across a heading or entry so that posts or legs may be set under its ends is frequently no easy task. Speaking roughly, its difficulty increases directly with the weight of the beam placed. The trouble encountered also is increased if the beam must support lagging and roof blocking throughout a portion or all of its length.

In the accompanying illustration may be seen a homemade jack employed for the raising of the steel I-beams employed as roof supports across headings and entries in the mines of the U. S. Coal & Coke Co. in West Virginia. The construction of this jack is self-evident from the picture. The steel beam is clamped to the head of the ratchet bar in order to minimize the possibility of its falling during the setting process. A wrench, bolt or bar of steel can be placed on top of the horse and slipped into a notch in the bar to hold the weight in position while the lever is being raised to get a new bite.



Homemade Beam Jack in Operation

This outfit is extremely simple in construction, consisting of a horse, a ratchet bar working in a suitable guide and a lever. The beam to be raised is first clamped to the top of the ratchet bar to minimize danger of its falling during the raising process. By means of this jack beams may be raised snug against the roof and held there until finally supported at either end.



Raising Heavy Beam Into Position with Two Jacks

Two men by aid of these jacks can easily raise a beam that only a big gang could raise without them. Furthermore, as the beam is clamped securely to the ratchet bar, there is small danger of its coming loose and falling. The job is thus rendered not only comparatively easy but much safer than would otherwise be the case. Note the trolley-hanger support on the right. This illustration is made from a photograph taken in No. 9 mine of the United States Coal & Coke Co., Filbert, W. Va.

Panama Mine, Ben Franklin Coal Co. of West Virginia

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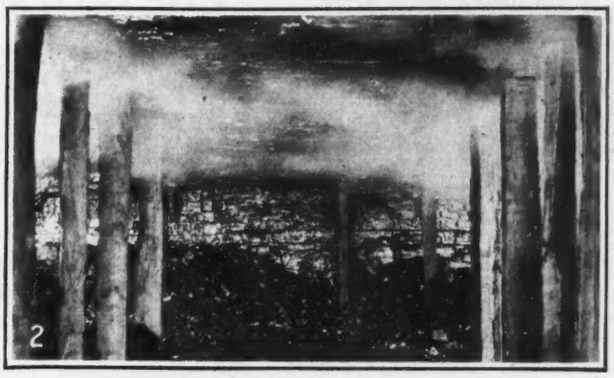
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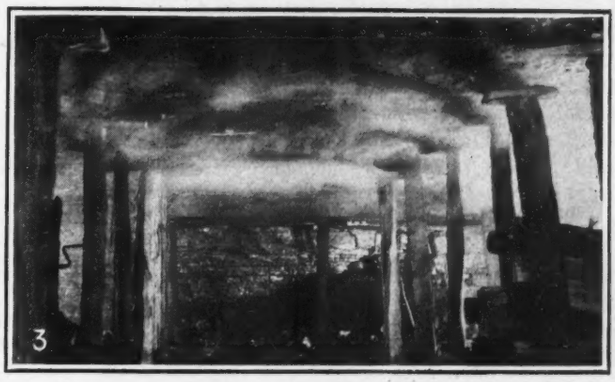
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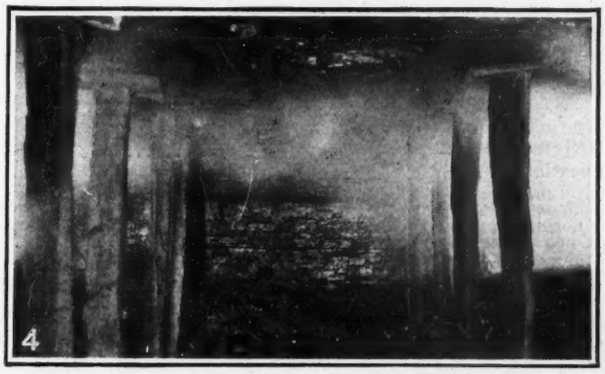
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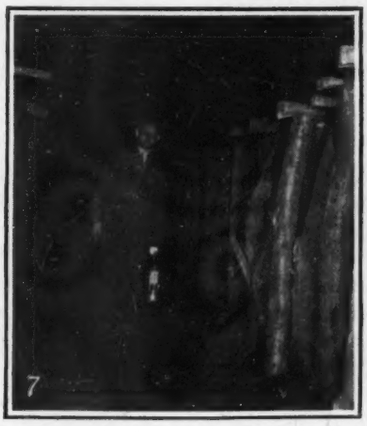
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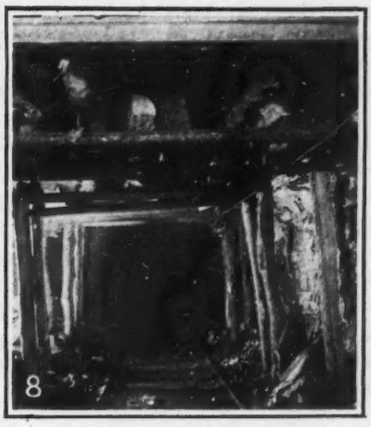
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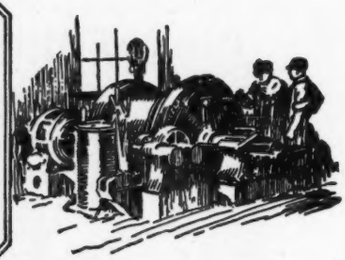
All views are in No. 8 seam. The mine is at Moundsville, W. Va. Fig. 1 shows the inby end of panel and Fig. 8 the middle of the panel where the slate has fallen. Fig. 7 shows a room close to the point where Fig. 8 was taken. Note closely set props and evidences of weight. Figs. 2, 3 and 4 shows the conditions after the coal has been shot ready for loading at the end of the face in 24- and 30-ft. rooms. In the 24-ft. rooms, timbers are set 3 ft. apart and in two rows, on each side of the track. In the 30-ft. rooms, there are two rows on one side and three on the other. Fig. 5 shows a fallen slab of unpropped drawslate near the working face of a room.

Practical Pointers For Electrical And Mechanical Men



Even Experienced Men Err in Stator Connections

Motor winding is a specialty, and, many chief electricians, therefore, are not familiar with the connection details of all the direct- and alternating-current equipment over which they have charge. Where armatures and motors are sent to commercial shops for repair electricians find such knowledge unnecessary and fail to obtain experience in the art of winding that at other plants will be required of them.

SHOULD KNOW WINDING

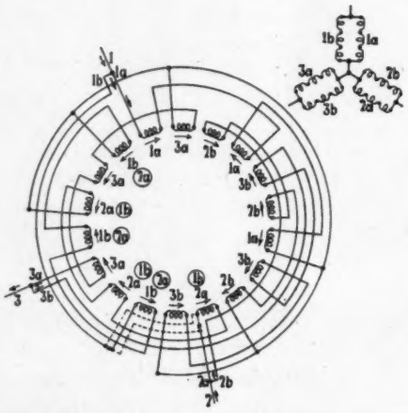
Even though such work is not done at the mine, the chief electrician may find at times that a knowledge of winding practice is quite valuable. An example is the following case of a 30-hp. squirrel-cage induction motor, the stator of which was rewound at a commercial shop. As returned to the mine the stator connections were not correct, but the chief electrician made the necessary changes in time to eliminate further delay and was able to convince the manager of the commercial shop that he should credit the coal company for time spent in correcting the trouble.

It happened that the electrical engineer of the coal company arrived at the mine while the chief electrician was puzzling over the trouble. The motor was intended for driving a fan which was to ventilate a new section of the mine through a recently constructed drift opening. The superintendent was anxious to get the fan into operation. The motor, which was 3-phase, 220-volt machine refused to run even at light load. Consequently, the chief electrician untied the end connections and pulled them out so that the winding could be checked.

FOUND NO ERROR

He traced the connections many times but had found no error. The electrical engineer on his arrival traced and checked the connections by the same method, that is by making a sketch indicating the coil groups and showing with arrows the polarities at an instant when the current is flowing into the stator on two conductors, and out on one conductor.

He likewise pronounced the connections correct, but the fact remained that the motor would not run. Both men had, at one time, been foremen in winding shops and were surprised to find a motor that would not run, even though, according to the popular rule, it was wound correctly.



Motor with Its Original and Revised Connections

The corrections are indicated by dotted lines. The letter *X* denotes that the original circuit was cut at that point. The new connections did not change the arrows but did change the pole group phase numbers.

CHANGED SEQUENCE

The two-parallel Y-connected winding is shown in the accompanying sketch. The dotted lines show the revised connections which corrected the trouble. A leg of one phase was interchanged with a leg of another phase in which the same current direction was assumed.

As the sketch illustrates, this did not affect the apparent polarity of the groups. It did, however, affect the sequence of the group phase numbers. The corrected numbers of the six groups involved are indicated by circled figures on the sketch.

The error was located by making a drawing showing the manner in which such a motor should be connected and comparing this with the sketch of actual connections. When informed of the trouble and of the necessary connection changes, the manager of the commercial shop was not convinced until he had been shown a sketch such as that accompanying this article.

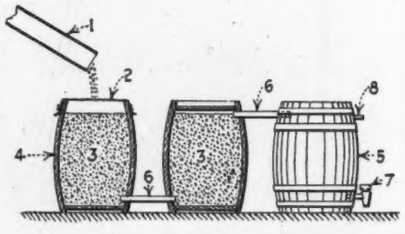
WHERE "OLD RELIABLE" FAILED

He then admitted that this was a case where his "old reliable" rule was not a sure check. In addition to the polarity arrows indicating the poles, it is necessary that the coils groups have a uniform phase rotation consecutively around the winding. The rule was correct as far as applied, but the latter half, which seldom need be exercised, had been forgotten.

Water for Batteries Needs Careful Handling

To operate satisfactorily a storage battery must be regularly filled with water, to replace that which evaporates naturally and which is decomposed by the current. Distilled water is preferable, but cannot always be obtained. Rain water, which is plentiful in most localities is a good substitute if not contaminated in handling.

The accompanying sketch shows a simple and inexpensive method of collecting, filtering and storing rain water. Explanation of the reference



Rain-Water Storage for Batteries

When distilled water is not available, water caught from a non-metallic roof is quite satisfactory if proper care is taken of it. Wood barrels thoroughly cleaned serve well for filtering and storing the water.

numbers is as follows: (1) Drip trough from non-metallic roof, (2) Burlap or fine-mesh copper screen, (3) Clean sand, or a mixture of sand and charcoal, (4) Wood barrel, thoroughly cleaned, and with top head removed, (5) Wood barrels, thoroughly cleaned and with top heads replaced, (6) Copper, brass, rubber or glass tubing, (7) Spigot, (8) Small vent holes.

OIL BARRELS WILL SERVE

Wood barrels in which oil has been shipped are satisfactory if thoroughly washed with gasoline. If additional barrels are added to increase the storage capacity, all inlet and outlet holes must be near the bottom, and vents provided at the top.

The arrangement is automatic and therefore insures a water supply for the batteries if the capacity is such that no doubt can exist of its adequacy to last between rains.

Philadelphia, Pa. K. R. WOLFE,
Electrical Engineer.

Sand Electric Locomotives Through Hose

At many mines the preparation of sand for electric locomotives is a difficult job especially during wet weather. The Clinchfield Coal Co., of Dante, Va., has a convenient method of drying and delivering sand to the locomotives at its drift mines as is shown in the two illustrations that accompany this article. The sand is unloaded from a mine car direct into the sand drier. As soon as it is dry it is shoveled into a bin with a sloping bottom. Attached to the opening to the bin is a ½-in. hose, the admission of the sand to the hose being regulated by a homemade slide valve.

SEVERAL SANDED AT ONE TIME

Several locomotives can be charged with sand at the same time. In Fig. 1 is shown a locomotive coming from the shop and filling up. On the end of the building shown in Fig. 2 two hose are attached for filling the main-line locomotives as they pass the sandhouse. The advantages of this arrangement are that the sand has to be handled less and can be transferred with less expenditure of the time of the trip crews. Rain does not interfere, and less sand is wasted than when old carbide or powder kegs were used for charging the sand boxes as is the customary method at coal mines.

W. J. GERMAN,
E. I. du Pont de Nemours Co.
Huntington, W. Va.

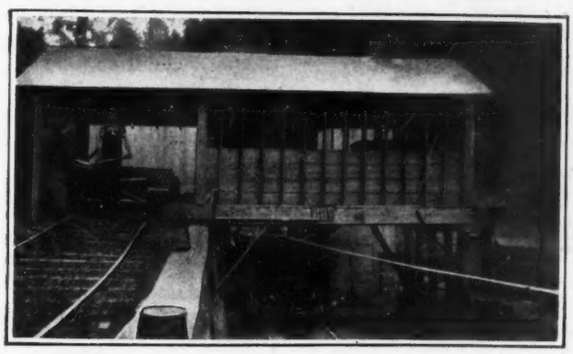


FIG. 1
Sandhouse
Several locomotives can be supplied at one time and the sand does not get wet, nor is it wasted.

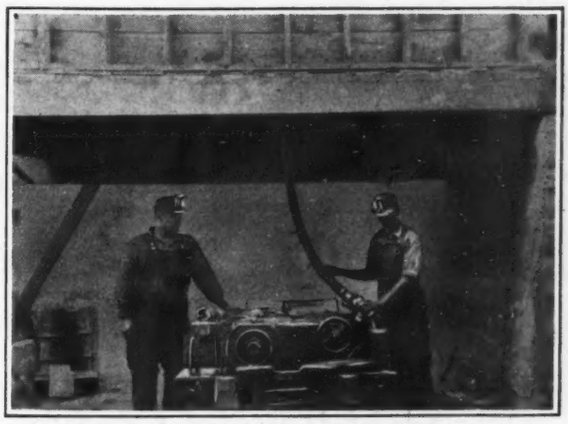


FIG. 2
Filling Sand Box With Hose
The main-line locomotives can be filled as they pass the sandhouse. The crew is not unnecessarily delayed. For large tonnage the locomotives should not be needlessly detained for this or any other purpose.

Keep Track of All Equipment

It is doubtful if any electrified mine is so small that there is no need to keep a careful record of the machinery installed. The larger the mine the more urgent the need. Economical supervision over the mechanical and electrical equipment of an associated group of mines is impossible without proper records.

At even the smallest mine the lack of a record may be the cause for delay and extra expense in repairing a breakdown. For instance, take the case of a stationary electric motor from which the manufacturer's name plate has become detached and lost. Without name plate data the ordering of certain repair parts is difficult. It usually involves much correspondence and the receipt and return of parts which do not fit.

RECORDS AID INTERCHANGE

One of the advantages of central operation of a group of mines which are not too widely separated is that a saving can be affected by an interchange of equipment and in the distribution of repair parts. This, however, cannot be accomplished to an appreciable extent unless there is available an up-to-date equipment record in the central operating office.

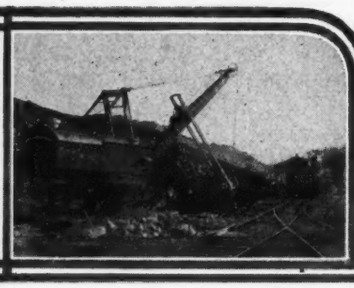
This record need not be elaborate. The most important item to include is a complete copy of the name-plate data, but other information such as date of purchase, order number and cost usually prove quite useful. One mistake often made in preparing equipment records is to adopt a card, or form sheet which is too small to conveniently contain all of the important information pertaining to certain of the machines.

MANY NOTATIONS HELPFUL

Several large companies use a letter-size sheet for each item of equipment. By writing on both sides this allows ample room for recording the nature of the equipment and leaves space for later notations such as gear sizes and so on which it may be found necessary to determine and which should be recorded for future use.

But the important matter is to have some sort of complete record, whatever the form. The chief electrician, master mechanic, or electrical engineer of a mine or group of mines should be able to supply complete information on any item of equipment by opening a book or referring to a card file. Such records are an indication of efficiency and thoroughness and are sure to save money.

News Of the Industry



British Coal Strike Shows No Let-Up In Bitterness; Eight-Hour Bill Passes Amid Renewed Scenes of Rowdyism

The permissive eight-hour bill sponsored by the Baldwin government is now a law, but the British coal strike continues with all the uncompromising bitterness of its inauguration on May 2. The measure received the approval of the House of Lords last Thursday after renewed outbreaks of rowdyism which did not stop at the portals of the august chamber of peers. Attempts of Labor members of the upper house to delay action by filibustering speeches were cut short by a motion of cloture, which passed 44 to 4.

For a few hours last week it looked as if the government would abandon its legislative program. Angered at the action of Yorkshire coal owners in posting notices providing for a reversion to the 1921 basis of the division of proceeds, which allotted 85, instead of 87 per cent, to wages, Viscount Cecil on July 6 interrupted a discussion of the bill in the Lords to announce that the government had reconsidered its intention to expedite the passage of the bill.

Pressed for an explanation of the government's change in position, Lord Salisbury retorted that his party was determined to carry out the Prime Minister's pledge that no injustice should be done the miners in the reorganization of the industry. The terms posted in one district, he continued, were so disappointing that time should be allowed for a clear statement of the reasons back of the departure from the generally accepted provisions or for an alteration of the offending terms.

The announcement of the government's stand was followed by a quick capitulation of the coal owners. On July 7 it was stated in the House of Lords that the Yorkshire operators were willing to line up with the other producing districts in the maintenance of the 87-13 division of the proceeds. This was confirmed in a letter from the Yorkshire group to Premier Baldwin, and the bill was again taken up.

While this difficulty was being ironed out the Conservatives were waging a fight in the House of Commons to force through an appropriation of £3,000,000 to set up a revolving fund for the purchase and importation of coal. This was bitterly opposed by the Labor members, some of whom launched personal attacks upon the government ministers. Fred Hall accused the government of using the Germans they had fought in 1914 to break the miners' resistance.

"You prefer to subsidize your former enemies rather than British ex-soldiers working in our own mines," he declared.

"Get your coal from hell!" shouted J. J. Jones, one of the ringleaders in the Labor group which has been conducting itself so disorderly that it has drawn down the censure of its own party chiefs.

"You'd buy coal from the Russians or Germans or Old Nick himself to be at our people," was D. Kirkwood's contribution to the discussion.

Debate on the question was ended by the government moving the cloture. An amendment to reduce the amount was defeated and the original motion to appropriate the £3,000,000 carried by a majority of 129.

A. J. Cook, secretary of the British Miners' Federation, has appealed to the German colliery workers to stop exports to Great Britain from German coal fields. "The English government and mine owners," he asserted in an article in *Rote Fahne* on July 8, "base all their propaganda on the fact that the German miners are enabling coal to be sent to England, saying that Germany wishes to cash in on the English miners' plight. At least 200,000 tons of German coal have already been transported to England from the Reich. We do not want sympathy from our German brothers; we want action. While the Russians are sending money to help the miners win the strike Germany is sending coal to help defeat it."

British Unemployment Mounts

The number of unemployed persons in Great Britain exclusive of the striking coal miners, totaled 1,638,600, during the week ended June 28, an increase of 3,858 over the figure for the preceding week, according to an announcement on July 6 by the Ministry of Labor.

The effect of this condition on relief work is illustrated by the fact that, in addition to the living allowances which the disagreeing miners obtain from their unions, the miners' families are entitled to draw poor relief at the rate of 12 shillings a week for the miner's wife and 4 shillings for each child. During the week ended May 22 the amount of expenditure in the national distribution of poor relief, as a result of the coal stoppage, was £1,079,000.

The New England Coal & Coke Co., subsidiary of the Massachusetts Gas Companies, was the successful bidder on a contract to supply 400,000 tons of coal to the New York, New Haven & Hartford R.R., the price being $4.87 a ton.

Keystone View Co.

International Miners' Federation Meets in London

Delegates photographed after a recent conference with executives of the British Federation. Front row, left to right: Dr. Beger, Germany; Mr. Stanyckh, Poland; Frank Hodges, Great Britain; Pierre Vigne, France, and F. Husemann, Germany.

Two More Coal Companies Resume Under 1917 Scale In the Pittsburgh District

The movement back to the November, 1917, wage scale in the Pittsburgh territory has received further impetus with the announcement that two additional companies have started operations at their mines. The number of independent operating companies working at the 1917 scale has been increased to eight as the result of these additions, and conditions in the district are rapidly reaching the point where the Pittsburgh Coal Co. does not have to bear the full brunt of the movement.

The Montour Collieries Co. has started operations at its mine at Moon Run on the 1917 scale, and while the number of men was not given, it was said the force would be gradually increased until the normal output of the mine was obtained. The first coal has already been loaded, after the preliminary clean-up period. This mine is in the neighborhood of the Pittsburgh Coal Co.'s Moon Run mine and the mine of the Clinton Block Coal Co., which has been making steady strides since it started to work on the 1917 scale.

The other company to reopen a mine is the McClane Mining Co. Its Rich Hill mine has been started at Meadowlands. Operations were resumed with 60 men, and it is planned to increase the number of employees to 100 as soon as practicable.

On the other hand, reports are heard of some slower operations of the Bethlehem Steel mines due to the lessened need of coal at the mills during the summer.

It is reported that a mine of still another company is being prepared for work in the next few weeks.

Thirteenth Mine to Resume Soon

It is likely that the Pittsburgh Coal Co. will open its thirteenth mine under the 1917 scale some time during the current month. The name of the mine to be opened is not yet revealed, but plans are being shaped for the loading of coal in the near future, it is learned.

There is some talk of the company opening a river mine, but it is not likely that this will be done because of the possibility that continuous operations might not be kept up due to river conditions.

The number of miners working for the Pittsburgh Coal Co. in 12 mines in the Pittsburgh district on the open-shop basis passed the 3,000 mark for the first time on July 8 when 3,018 men were reported at work.

It is a little more than 10 months since this company started the first mine in the Pittsburgh district independent of the United Mine Workers.

The figure does not count the number of men on the payroll which is considerably larger, but includes only the number of men actually working.

It is estimated there are about 5,500 non-union miners working in the Pittsburgh district, in a total of 21 mines operated by eight companies.

District Union Boosts Kansas Coal

In a campaign to promote the use of Kansas coal in Kansas, the executive board of District 14, United Mine Works, sent a circular letter to boards of education in all cities of the first and second class in Kansas on June 28 appealing for support of the industry and within less than a week had received replies from several cities asking price quotations on coal totaling 2,000 tons. Harry W. Burr, district secretary, said he expects many more price inquiries and resultant sales to follow.

In his letter to the school boards of the state, Mr. Burr said: "The coal industry in our state is in a decided slump, with slack work and a great many mines idle. This is partly due to the fact that a great deal of coal is owned by railroad companies, either directly or indirectly, and their policy on the conservation of fuel is that only 10 per cent of their production be sold on the open markets.

"Other producers in our district adhere to a policy of selling their coal through selling agencies in Kansas City, thereby causing the added expense of some two or three middlemen.

"The use of Kansas coal by Kansas consumers, if purchased direct from the coal fields, would mean a saving to the consumer and would react to the benefit of the commonwealth."

Reading Seeks Control of Lehigh & New England

Authority to acquire control of the Lehigh & New England R.R. by a 999-year lease dating from Jan. 1, 1927, was asked by the Reading Co. in an application filed with the Interstate Commerce Commission at Washington, July 8. Acquisition of the road, which operates 155 miles of line in Pennsylvania, New Jersey and New York, the application said, would enable the Reading to operate through and shorter routes transporting anthracite from the Schuylkill regions of Pennsylvania to points in eastern and northern New York and New England.

It also would permit improvement of through routes now existing and the opening of additional ones for the handling of traffic between the Northeastern States and Southern, Western, Southwestern and Southeastern points.

The Reading would pay an annual rental, payable quarterly, of $1,069,000 and would assume liability for equipment trust obligations of the road.

Belief in the New York financial district is that the Reading in applying for authority to lease the Lehigh & New England is acting in behalf of the Baltimore & Ohio R.R., which is engaged in building a greater B. & O. system. The Lehigh & New England, while not of major importance in the Eastern situation, is regarded as a valuable anthracite road.

Coal Inspectors Not Covered In Union Pact

Coal inspectors do not come under the terms of the existing agreement between the United Mine Workers and the anthracite operators of Pennsylvania, according to a decision handed down July 7 by Charles P. Neill, umpire of the Anthracite Concilation Board. The decision, which affects hundreds of employees in the three hard-coal districts, was rendered in the adjudication of a complaint against the Lehigh Coal & Navigation Co.

"The occupation of coal inspectors does not appear on the rate sheets of the respondent company," said Mr. Neill's decision, "and in an inspection by the umpire of the rate sheets of over 100 collieries (the rate sheets of which were in the files of his office) it was found that the occupation of coal inspector or assistant coal inspector appeared on the rate sheets of only four collieries. From this it is obvious that, except in cases of a very few collieries, it has been the common understanding that coal inspectors were not covered by the provisions of the agreements. Nor does it appear that at any time previous to the raising of this grievance anyone had ever contended that the coal inspectors of this company came under the provisions of the collective agreements. . . .

"From the arguments of the representatives of the complainants, it appears to be conceded that there could be no claim that these positions come under the provisions of the agreements prior to the date that the individuals filing the positions joined the union. But, as already pointed out, the joining of the union by an individual, or a class of individuals, cannot by itself be held to bring his or their occupation, or occupations, under the agreement any more than it could be held that the withdrawal from the union of an individual, or a class, would take their occupations from under provisions of the agreement.

"As it is not claimed that the complainants' positions came under the agreements prior to their joining the union, it may be pointed out that to enlarge or restrict the scope of the agreements there must be mutual consent. It is not within the power of either side to enlarge or to restrict this scope without regard to the wishes of the other party. It must, therefore, be held that the coal inspectors of this company are not covered by the agreements; and the grievance is, accordingly, not sustained."

Cooper Succeeds Tower

William L. Cooper, of Michigan, has been apointed Commercial Attaché of the Department of Commerce at London, according to an announcement made July 7 by Dr. Julius Klein, Director of the Bureau of Foreign and Domestic Commerce. Mr. Cooper will fill the vacancy caused by the resignation of Walter L. Tower, who left the service of the department to enter private business. Mr. Cooper is a graduate of the University of Michigan with a degree in mechanical engineering.

Bittner Denies Failure Of Strike, as Intimated By Non-Union Operators

Operators of non-union mines in northern West Virginia assert that production in their holdings continues normal, despite the strike call to take effect July 5 issued by the United Mine Workers to all miners in the district.

J. L. Studdard, president of district 31, United Mine Workers, said he had reports that 1,500 men had come out in the Clarksburg field, but that a complete check of the region had not been made.

Reports on the effect of the strike call in the Monongalia County field also were conflicting. Ish Barnes, international representative of the United Mine Workers at Morgantown, announced that 500 men in the Monongalia field had answered the strike call. The operators, however, declared the strike call had not affected any mines in the district.

The assertion of the local coal operators that production was not affected by the strike call are vigorously denied by Van A. Bittner, chief international representative of the union, who attacks the figures compiled by the Northern Coal Bureau, a local statistical service. According to loading totals issued by railroads in the region, however, daily output is showing a gradual return to normal after a severe slump following the double holiday. Last Thursday's mark went over the 1,800-car total.

Kansas Convict Miners Rebel

Sixteen officers and guards and 375 convict miners were locked in the coal mines of the Kansas Penitentiary at Lansing, Kan., last Friday night, 730 ft. below the surface, following an outbreak by the convicts. The miners mutinied and blocked the cage in the shaft, making it impossible to send help down to the guards, Warden Mackey said.

Law Requires Heat-Unit Label on Coal

An ordinance requiring Indianapolis (Ind.) dealers to label coal with the number of heat units it produces went into effect July 1.

Inspection of furnaces by local bonded heating contractors to determine the type of coal best adaptable to the furnace is recommended by Joseph C. Buchanan, city smoke inspector, to all householders who plan to buy their winter supply of coal soon.

This service is volunteered free of cost by a number of reliable coal firms. "A minor change or repair, such as increasing the volume of cold air, will often add to comfort as well as save a large amount of fuel," Buchanan said.

W. B. Smith, a coal expert of the Better Business Bureau, has agreed to aid householders in determining whether they have received the type coal they ordered.

Consumers are advised to purchase a booklet issued by the U. S. Government analyzing all coal mined in this country.

Tests of coal from the southeastern Kansas district, which the Pittsburg Real Estate Dealers' Association recently had made by Eastern coking concerns, show that coal from some of the deep mines of the district contains from 3½ to 6 per cent sulphur, which is too high to make is suitable for coking. Coal from other mines has as little as 2 per cent sulphur and could be used for making coke. The realtors now plan to ship a car of coal from one of the mines in which the coal has the the smallest sulphur content and have a practical coking test made. Analyses also will be made to determine what byproducts may profitably be derived from the Kansas coal.

Typical Scenery in the Hazard Field of Kentucky

This view of mine No. 5-A of the Columbus Mining Co., at Allais, Ky., was taken from the headhouse of the new mine No. 5-B, which is directly across the hollow. The rope-and-button conveyor in the foreground handles the coal from both seams. The interval between them is 60 to 70 ft. In the Hazard field seven or eight different seams have been worked.

Japanese to Mine Coal in Russian Saghalien

Shanghai, China, April 1.—The concession by which the Japanese firm of Tsukahara will be permitted to mine coal in the Russian part of Saghalien Island has been settled and it is expected that the agreement will be signed soon, it is reported here.

The period of the concession is thirty-three years. The royalty is 5 per cent of the output for 1928, 1929 and 1930, 6 per cent for 1931, and 8 per cent from 1932 onward. The two first years, 1926 and 1927, will be devoted to investigations of the coal field and will be free of royalty payments. There will be a single comprehensive tax of 3.33 rubles per hectare plus 1 ruble per hectare on the coal fields per annum.

Russia reserves a preferential right to buy 50 per cent of the coal produced.

The coal fields to be investigated extend over an area six miles square in Kostina, North Saghalien.

Tokyo, Japan, April 1.—The Tokyo Foreign Office has received a notification through the Soviet Embassy here that after inspection of Japan's mining of coal and oil concessions and present operations on the island of Saghalien, in April or May, the chairman of the Soviet Revolutionary Committee in the Far East will visit Japan, when it is expected that he will be commissioned to take up with Japanese officials problems that have arisen through operation of Russia and Japan on Saghalien.

Common Law Trust Scheme Suppressed in New York

The Martin Anti-Stock Fraud Law was resorted to in Albany, N. Y., June 26 to suppress the stock-selling operations of a so-called common law trust doing business under the name of the United Producers Co., of Binghamton, N. Y., and Louisville, Ky. Attorney-General Albert Ottinger obtained an injunction from Supreme Court Justice Ellis J. Staley restraining the concern and its promoters from further sales of its $500,000 of stock. Promoters of the enterprise, the shares of which are valued at $1 each, claim to control valuable coal deposits in Kentucky.

Attorney-General Ottinger stated that "The common law trust is not an incorporated company with fixed liability, neither is it a partnership in which each partner is liable for the obligations of the firm, but is merely the result of declaration filed in some office of authority in any one of a number of states, outside of New York."

Sheridan Strike Called Off

A strike order on all mines owned by the Sheridan Coal Co., whether operated by itself or lessees, which District 14 United Mine Workers executive board had issued to take effect July 12, was rescinded July 8. The strike order was issued because Riley Davidson, lessee of one of the Sheridan mines, had notified his daymen that they must accept wages less than the scale, the union asserted, but when he agreed to abide by the Jacksonville agreement the strike order was cancelled.

Joint Selling Scheme Suggested By British Coal Miners' Leaders Elicits Interest in Washington

By Paul Wooton
Washington Correspondent of *Coal Age*

One of the most interesting developments of the Britsh coal situation which has come to the attention of observers in Washington is the demand of some of the miners' leaders for the formation of a selling combination among British producers. A. J. ("Emperor") Cook, secretary of the Miners' Federation of Great Britain, is quoted as follows:

"The world's output of coal is slightly in excess of the world's demand. M. Loucheur has reckoned the excess at 2 per cent. At the same time the output is increasing and the world's demand is slowly dwindling. Under these conditions an unregulated output spells chaos in the industry; competiton must mean the suicidal cutting of prices, and the brunt of the sacrifice will fall on the men.

"What we demand, then, in the name of common sense, is an accurate adjustment of the output to the demand. We propose as the most urgent step the creation of a selling agency, which shall, first of all, fix the quantities which shall be exported, in consultation with the organized German industry.

"The sole obstacle to an agreement is the individualism and contempt for economic science of the British owners. Once a strong selling agency capable of fixing quotas of output were set up in this country, the crisis in the industry would pass and a living wage would become a possibility even in the exporting districts. Sir Alfred Mond, who has had more experience than most men in the technique of combination, has predicted that a few months would suffice to complete the process."

Wages High Factor in Costs

Whether or not the British owners are likely to take this suggestion seriously will be of much interest in this country. In this connection specialists here point out that coal is a commodity in which 65 to 80 per cent of the total cost is represented by the amount paid labor.

As demand for coal is inelastic, the operator who wants to sell his product, naturally and almost inevitably, endeavors to reduce wages. It is the easiest way he can bring down his costs without an expenditure for new equipment. Economies in the use of supplies and reduction of overhead offer small possibilities in comparison with the effect of a reduction in the wage rate. Every period of depression in the coal industry brings pressure to reduce the scale and in the non-union fields sweeping cuts are made.

It is doubted if a reduction of 10 or 15 per cent in the British wage rates would make possible the recapture of the markets which Great Britain had formerly. Such a reduction would have little effect in the competition of water power, as the installations already made will continue to be used. It would have little effect on competiton with fuel oil, as that commodity is a by-product of gasoline manufacture. A surplus of fuel oil is sold at whatever price is necessary to move it. A reduction in British wages would not recover many of the markets lost to German competition, as the Germans are in a position to go further in the matter of wage reduction than are the British.

The present situation has much in common with that which led the German producers to form the Rhenish-Westphalian Coal Syndicate. In the 90's the coal industry was depressed. Prices were low. Unemployment was serious. The German producers organized their syndicate with a common selling agency, which fixed production quotas and stabilized prices at profitable levels. Important economies in distribution were effected. Gradually the excess capacity was absorbed and the working time of the German mines rose to 300 days a year.

The results which would follow some such action on the part of the British are regarded as scarcely less promising. The obstacle in Great Britain is the large number of producers and the habit of indivdual self-reliance. There is reason to believe, however, that a temporary agreement, at least, could be reached with the Germans in the matter of fixing export quotas. The Germans, like the English, are suffering from the present situation. The depression which grips the coal industry is worldwide and is in no sense local to any country. It is caused by the expansion of capacity in the face of a reduction in the demand.

The decrease in demand comes partly from fuel economies, but mostly from competition with petroleum and water power. Of these two petroleum is by far the more important. The growth in the use of petroleum since 1913 has been such that it is believed to be now displacing 172,000,000 tons of coal annually. If the pressure of petroleum could be expected to last forever there would be nothing to do but to shut down 15 per cent of the coal industry. In view of the fact that the pressure of petroleum cannot last many years, however, there are many who feel that some such plan as that suggested by the British miners would be justified to tide over the emergency.

EDITOR'S NOTE—*The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and* COAL AGE *editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.*

Five Bids on Bunker Coal For Shipping Board

Five bids were received by the U. S. Shipping Board at Washington on July 7 for supplying the bunker coal needs of the Emergency Fleet Corporation at New York during the next ten and one-half months, at the rate of approximately 12,000 tons per month. The bidders follow:

Cambria & Lackawanna Coal Co., $6.06 per ton for freight vessels and $6.41 for passenger vessels;

Pattison & Bowns, $6.16 for freight vessels and $6.56 for passenger vessels;

Steamship Fuel Corporation, $6.15 for freight vessels and $6.40 for passenger vessels;

J. H. Weaver & Co., $5.80 for freight vessels and $6.15 for passenger vessels;

E. Russell Norton, 8,000 tons per month at $5.74, for freight vessels only.

Where Freight Charges and Passenger Fares Go

To show the public what little the railroads keep for their stockholders out of the large revenues received each year, the committee on public relations of the Eastern railroads has prepared for broad distribution a calendar showing the equivalent number of days during which the railroads were operated to pay certain parts of their annual outgo.

A table announces that:

157 days went for wages,
27 for locomotive fuel,
70 for materials and supplies,
24 for operating expenses,
21 for taxes,
41 for interest and rents (fixed charges),
19 for dividends,
6 for improvements purchased out of earnings or to reserves.

The various days chosen to designate these equivalents are marked in contrasting colors. Thus wages in green cover January to May and part of June. The rest of June and part of July are in blue and apportioned to fuel. The remainder of July, all of August and part of September are in a straw yellow and dedicated to materials and supplies. Other expenses in red take the rest of September and part of October. Nearly all the rest of October is spent in accumulating money for taxes, the days being marked in tan. What little is left of October, all of November and six days in December are spent in getting the interest to pay for the use of borrowed capital. On Dec. 7—joyful day—the companies begin to put aside for dividends, but after only five days more than is consumed in the normal two-week vacation the collection for dividends ceases and six days of the week between Christmas and New Years' is spent getting money for improvements.

Untried Power Plant Risky, Especially in Wet Mine, Says Major Ivor David

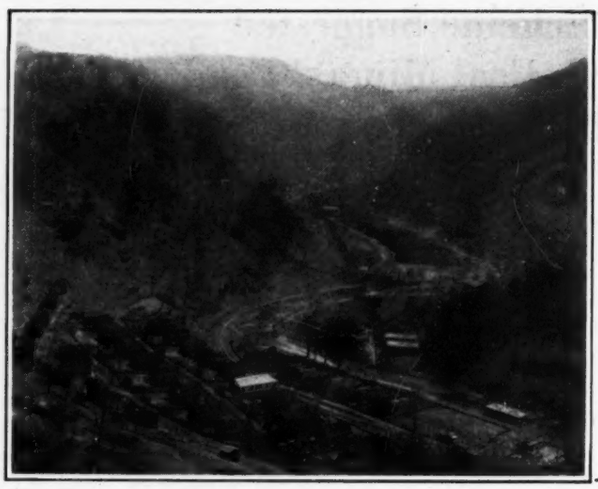
In a colliery power plant, reliability is more important than efficiency, according to Major E. Ivor David, chief electrical engineer for the Powell Duffryn Coal Co., Wales, who was the fourth speaker in a series of six lectures on "Some Problems in the Mining Industry," recently given at the University of Sheffield, England. Power-plant failures mean a stopping of the entire mine, said Major David, and in the case of very wet mines, a stoppage of the pumps for a considerable time probably would cause their abandonment. For this reason he advised that experimental plants were not desirable. Economy can be effected by centralizing the production of power, whether electricity or compressed air. At the Powell Duffryn collieries the power production had been centralized and the various power centers interconnected with rings of high-tension electric lines and compressed-air pipe lines. In this way the failure of any power center would not cause a shutdown of the mines in that district.

He described the power plants, winding and auxiliary equipment of the mines of the Powell Duffryn Coal Co., illustrated with lantern slides.

A colliery power plant is different from a public utility plant in that it has a certain control over the use of the power it developed. By using synchronous motors to drive constant-load machines such as fans, pumps, air compressors and generators the power factor of the system can be materially bettered. In the newer installations turbo alternators are being used. One of the Powell Duffryn stations uses gas engines running on coke-oven gas. As gas engines are not suitable for handling fluctuating loads, during the peaks they are supplemented by auxiliary generators.

He gave the following table illustrating the relative cost of producing power at the company's collieries; the cost figures are based on the cost of production by coal-fired boilers as 100:

Plant	Relative Cost	Over-all Thermal Efficiency
Old gas engine	117.95	19.05
New gas engine	108.15	24.00
Gas-fired boiler	95.12	19.35
Coal-fired boiler	100.00	16.35



Looking Down Marrowbone Creek

The view is from the headhouse of Henry Clay No. 1 mine of the Edgewater Coal Co., Lookout, Ky. In the foreground are some of the Henry Clay houses, and in the background is the town of Lookout.

Colliery steam plants had to be able to burn a variety of fuels. They had to act as balancing reservoirs for the sales department by disposing of unsalable material. Contrary to general opinion, he said, it paid to use washed coal. The washing process is inexpensive and pure coal and not part dirt was used.

Air was compressed by means of turbine-driven turbo compressors working in several stages. These were helped out during peaks by means of motor-driven reciprocating compressors. For distances up to five miles it was found cheaper to convey power as compressed air than as electricity. At five miles the costs were about equal. In choosing pipe sizes, curves were plotted for pipe sizes against yearly costs and yearly losses. The size selected was that corresponding to the minimum point on a third curve found by adding the first two.

The Powell Duffryn company found that it paid to scrap old equipment and to install the most modern in its place. The new equipment soon paid for itself in better output and increased reliability.

Distribution problems in a colliery power system are similar to those of a public utility company except that in the case of the colliery system the extreme in reliability is needed. Colliery switch gear must be of the best, for tripped circuit breakers often have to be reset with only a superficial examination. It is desirable to have a remotely controlled system so that the entire system can be conveniently under the observation of one man. Most transmission systems in mining districts are overhead systems due to an exaggerated fear of the consequences of subsidence.

Whether electric or steam winding is the cheaper is a controversial point due to the fact that occasions for direct comparison have been few. Reckoned in pounds of coal required to raise a ton of coal, the electric winder required roughly one-third the power that the steam winder had.

Major David outlined the various methods of controlling electric winders, describing a reversing switch developed by his company. This was an air-brake switch with an arc divider and a magnetic blowout. The activating medium was compressed air, which brought the contacts together with less of a shock than had the previous magnetic gear.

Another point to be considered was that, once the source of electric power was assured, the layout and erection of an electrically operated pit was much simpler and less costly. Also by means of recording meters a complete and accurate report of the performance and treatment of the plant was easily obtained.

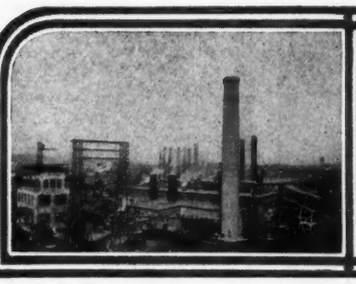
He concluded with a description of a new pit which the Powell Duffryn company had just completed sinking. A shaft 22 ft. in diameter had been sunk 600 yd. in fourteen months, and in that time the overhead works also had been erected. It was necessary to shift a river in order to make room for the power plant.

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of June

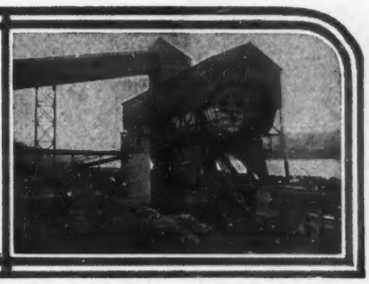
(In Net Tons)

Ports	Railroads	1926 Cargo	1926 Fuel	1926 Total	1925 Cargo	1925 Fuel	1925 Total	1924 Cargo	1924 Fuel	1924 Total
Toledo	Hocking Valley	2,913,549	84,769	2,998,318	3,003,070	86,759	3,089,829	2,283,927	67,447	2,351,374
	Big Four	609 849	4 487	614 336	517 657	1,651	519,308	.....	.....	.....
	N. Y. C.-Ohio Central Lines	702,539	35,389	737,928	259,290	24,050	283,340	4,505	227	4,732
	Baltimore & Ohio	934,016	25,119	959,135	1,002,569	30,378	1,032,947	468,692	14,834	483,526
Sandusky	Pennsylvania	2,242,701	64,390	2,307,091	1,677,960	51,178	1,729,138	637,844	19,219	657,063
Huron	Wheeling & Lake Erie	258,916	11,448	270,364	272,100	12,629	284,729	262,486	12,726	275,212
Lorain	Baltimore & Ohio	552,870	42,859	595,729	135,913	41,239	177,152	454,962	42,758	497,720
Cleveland	Pennsylvania	115,617	39,660	155,277	45,587	49,720	95,307	350,273	55,631	405,904
	Erie	.....	.....	.....	18,138	1,252	19,390	113,021	3,631	116,652
Fairport	Baltimore & Ohio	156,951	24,902	181,853	108,673	32,133	140,806	151,589	33,491	185,080
Ashtabula	New York Central	57,978	17,433	75,411	111,785	36,812	148,597	326,648	38,807	365,455
	Pennsylvania	337,519	19,769	357,288	151,160	19,943	171,103	321,273	27,629	348,902
Conneaut	Bessemer & Lake Erie	535,984	64,954	600,938	371,597	82,636	454,233	557,685	81,051	638,736
Erie	Pennsylvania	100,007	20,712	120,719	56,047	19,838	75,885	137,330	24,161	161,491
Totals		9,518,496	455,891	9,974,387	7,731,546	490,218	8,221,764	6,070,235	421,612	6,491,847
Storage loading		*60,142	774	60,916	*33,017	1,048	34,065	*182,060	4,940	187,000

* Coal loaded into vessels in December of previous year, after close of navigation, and forwarded from Lake Erie Ports during year indicated.
Compiled by Ore & Coal Exchange, Cleveland, Ohio: H. M. Griggs, manager.



News Items From Field and Trade



ALABAMA

Screening Plant Costs $100,000.—The Semet-Solvay Co. is installing screening equipment at its Ensley plant for the preparation of the different sizes of domestic and commercial coke. It is understood these improvements will cost around $100,000.

The Montevallo Coal Mining Co. has removed its Birmingham offices from 1000 North 28th St. to the fifth floor of the Martin Building, Fourth Ave. and Twenty-third St. The company operates the Aldrich mines at Montevallo, Shelby County.

COLORADO

Electric Line at New Mine.—Survey of an electric line seven miles in length from Hayden to the Sleepy Cat coal properties on Dry Creek began recently. The line will be operated by electric locomotives hauling 8- and 10-ton cars. Work of opening the properties has been going on for several months and shipments of coal hauled by trucks to the railroad station at Hayden are being made.

ILLINOIS

A. D. Lewis, of Springfield, Director of the Department of Mines and Minerals of Illinois, announces the following July itinerary for the Illinois Miners' Examining Board: West Frankfort, 15th; Duquoin, 16th; Centralia, 17th; Staunton, 19th; Springfield, 20th; Taylorville, 21st; Danville, 22d; Farmington, 23d, and Peoria, 24th.

The Marion County Coal Co., Centralia, has increased its capital stock from $100,000 to $200,000.

Pyramid Strip Mine Nearly Ready—Rapid strides are being made toward the operation of the new strip mine acquired by the Pyramid Coal Corporation near Duquoin. Charles F. Hamilton, vice-president of the company, reports switches laid and foundations set for the erection of the large rescreening plant and tipple. The strip mine will be the second largest in the southern part of Illinois, only the new pit of the United Electrical Coal Co., Danville, being larger. Development of that new mine also is under way. Officers of the Pyramid corporation are George F. Campbell, president; Charles F. Hamilton, vice-president and general manager; W. B. Crawford, secretary and treasurer.

Abandon Second-Vein Mining.—Third vein coal will be mined during the 1926-27 season at the mine of the McLean County Mining Co., Bloomington. Second-vein mining will be abandoned. The third-vein coal has not been worked for five years. Operations were suspended because working two veins was too expensive for the company. The mine reopened July 1, after having been closed for two months. Seventy miners will be employed. A washhouse equipped with steam and water fittings, shower baths, lockers and dressing rooms, has been installed in accordance with the will of the late Mrs. Matthew T. Scott. Mrs. Scott was the mother of Mrs. Carl Vrooman, one of the present owners of the mine, and the wife of the present president.

One of the largest classes in first-aid in the history of the Danville district recently completed its work, 127 receiving state certificates. With the aid of mine-rescue car No. 4 they also obtained federal certificates. The car is now working with about 250 in mine-rescue work. The car was at Georgetown last week, and was scheduled to proceed from there to Westville and Danville.

INDIANA

Disastrous Fire at Climax Mine.—The tipple, engine house and clay crushing plant of the Climax Coal & Clay Co. at Salino, twelve miles south of Brazil, was destroyed by fire during the night of July 5. The loss was placed at $150,000. Company officials declared they believed the fire was of incendiary origin. There had been no labor troubles at the mine, but it had only been operated occasionally and frequently was unable to meet its payroll. The mine was opened by E. J. Eppel of Brazil about ten years ago and had been in receivership for several years. Sam Lindsey, of Terre Haute, is receiver for the plant. It was stated that it will not be rebuilt.

Ebbw Vale Mine Resumes.—When the Ebbw Vale mine, two and one-half miles south of Sullivan, was reopened recently it was discovered that the fire had been entirely extinguished and that the loss will not be over $10,000, which is much less than expected. Preparations were begun to resume operations with about 400 men employed and it was expected that coal would be moving to market early this month.

The Kings Station mine of the Deep Vein Coal Co., located near Princeton, has been reopened after having been closed down since May 6 for repairs.

Raise Fares on Miners' Trains.—The Indiana Public Service commission has granted increases in rates for transportation of passengers on miners' trains on the C., C., C. & St. L. R.R. between Terre Haute and nearby mines. The schedule, which became effective July 1, fixes the cost of monthly commutation tickets to the Ventura mine, Riverside mine and the Wabash mine at $1.25. The charge to the Pittsburg mine is $1.38. Rates to other passengers for the same trips will be 10c., except to the Pittsburg mine, which was increased to 30c. The trains are to be operated to any of the mines named only on days when coal is being hoisted.

Papers have been filed with the Secretary of State at Indianapolis showing that the Al-Burn Coal Co., of Terre Haute, has increased its capital stock from $26,000 to $50,000, the increase being common stock.

The traffic department of the Indiana Bituminous Coal Operators' Association, for a number of years quartered in the Terre Haute Trust Building, has moved into offices adjacent to those of the operators' association in the Grand Opera House block. About two years ago the Indiana Coal Traffic Bureau, organized for the tabulation of production and other activities in the Indiana coal field, as well as for the handling of the freight end of the business, was consolidated with the operators' association as the traffic department. Jonas Waffle remains in charge.

IOWA

New Centerville Mine.—The Centerville coal field is to have another mine, which will be located on the Burlington railroad a short distance from the Sunshine mine. The mine is being sunk by Oscar Billberg and Jacob Ritter. Bids have been advertised for the sinking of the hoisting shaft.

KENTUCKY

Try Long-Face Methods.—At several mines in the Big Sandy field long-face methods are being given a trial. The reports are encouraging, but it is too soon to draw definite conclusions. Among the several companies reported as attempting long-face recovery are the Consolidation Coal Co., Van Lear, the Edgewater Coal Co., Hellier, and the Pike Floyd Coal Co., Betsy Layne. Conveyors are not being used by the two companies last named, but it is said that the Consolidation company is experimenting with four types of conveyors at Van Lear.

A. D. Reid, who has been active manager of the Interstate Coal Co.'s mine at Uniontown since 1921, has purchased the Canoe Creek mine near Henderson and will take charge at once. The mine has been closed down for several months, but will be started in operation soon.

MARYLAND

Sonny Mine Reopens. — Operations have been resumed at the Sonny mine of the Georges Creek Coal Mining Co., one of the largest mines in the vicinity of Lonaconing. The plant had been closed down since about the middle of May, when it was being operated about four days a week. Now it is working on a full-time basis with several hundred men on duty. The mine is an old working of the American Coal Co. and was acquired by the Georges Creek company several years ago. This mine was opened about the time of the Civil War but primitive methods were in vogue for so long a time that much good coal was lost. D. D. Dodge, of Shinglehouse, Pa., has succeeded Louis F. Gerdetz, of Pittsburgh, as superintendent.

NORTH DAKOTA

State Awards Coal Contracts.— Awards of contracts for furnishing state institutions with 80,700 tons of lignite fuel have been made to the following firms: Knife River Coal Mining Co., Beulah; Republic Coal Co., Zap; Rupp Coal Co., Garrison; Washburn Lignite Coal Co., Garrison; Stevens Bros., Garrison; Whittier-Crockett Coal Co., Columbus; Scranton Coal Co., Scranton; Truax Coal Co., Columbus; Wisom Coal Co., Columbus; Lehigh Coal Co., Dickinson; Pittsburg Coal Co., Dickinson. Under the state law, all coal for state institutions must be exclusively from lignite mines of the state.

OHIO

Hatfield Reliance Plans River Plant.— Ten acres of river-front property, with sidings and all rail equipment, belonging to the Hatfield Reliance Coal Co. at Riverside a suburb of Cincinnati, has been sold to the Big Four railroad to be used as a part of its $5,000,000 improvement in switching and reservoir yards. This plant was started in 1915 with the intention of making it an extensive river-rail coal terminal but while much was done to this end the plans were never carried to fruition because of the war. It is now the intention of the Hatfield Reliance company, which owns a choice block of city property, to install an up-to-the-minute rail and river terminal with elevator equipment from the river. In a few weeks plans will be completed which will allow this work to proceed so that it will be in operation before the winter season sets in.

Powhatan Strike Settled.—The strike at the Powhatan mine of the Powhatan Mining Co., near St. Clairsville, which was called July 1 by Lee Hall, president of the Ohio miners' union, in conjunction with John Clinque, sub-district president, has been settled by the operating company taking back the 70 miners who were discharged for loading dirty coal. The union committee agreed to stand back of the company in case the miners repeated the offense. In all, about 600 miners were on a strike for several days.

To Sell Coal Property for Taxes.— Coal property owned by the Richland Coal Co. scattered in all sections of Ohio and Brooke counties will be offered for sale at the court house at Wellsburg and Wheeling, according to official notice published by the government. The notice states that the properties are to be sold as the result of nonpayment of assessed taxes. The Brooke County property will be sold on Aug. 4 and the Ohio County property on Aug. 5.

Black Carbon Seam

The coal is pitching at 60 deg. The seam is mined by the Black Carbon Coal Co., Black Carbon, Wash. The miners have cut precarious footholes in the underlying stratum.

PENNSYLVANIA

The Jefferson & Clearfield Coal & Iron Co. is preparing to tear down its coke plant at Soldier. This work will be accompanied by the taking up of considerable branch railroad track in that vicinity and the indefinite closing of a number of coal mines in that territory. Some of these operations have been active for more than 30 years, but labor and other difficulties have made them unprofitable.

To Build Mine-Mouth Power Plant.— The Duquesne Light Co. will construct a large new power plant at Shipping Point, five miles down the Ohio River from New Brighton, at a cost of about $40,000,000, according to an announcement by James M. Graves, vice-president and general manager of the company. "Coal acreage has been purchased," said Mr. Graves, "and ground will be broken for the plant next spring. It will be a mine-mouth plant, which will make for economy."

Bituminous coal (revenue) transported by the Reading Co. during May, 1926, totaled 1,437,655 gross tons, compared with 1,324,784 tons in the corresponding month of last year, an increase of 112,871 tons.

Alliance Seeks Bridge Permit.—The state Water and Power Resources Board has received an application from the Alliance Coal Mining Co. for the right to construct a bridge across the east branch of the Schuylkill River, 1,200 ft. east of the west borough line of New Philadelphia, Schuylkill County.

Eight Soft-Coal Inspectors Named.— Governor Pinchot has appointed eight bituminous coal inspectors, five of the appointees receiving reappointments to date from May 15. The new inspectors named were William G. Knapper, Philipsburg; Alexander Jack, Lilly, and P. F. Narin, Johnstown. The inspectors reappointed were: Silas S. Hall, Connellsville; John Ira Thomas, Johnstown; James D. Walker, Butler; T. J. Lewis, Punxsutawney, and W. B. Wardrop, Barnesboro.

Hudson Liable for Heavy Taxes.— Millions of dollars in additional anthracite taxes will be collected by the state as a result of the recent decision of the State Supreme Court in the case of the Commonwealth vs. the Hudson Coal Co. This opinion reaffirmed the constitutionality of the anthracite tax act of May 11, 1921. "The state," said State Treasurer Samuel S. Lewis, "should benefit to the extent of $3,082,298.63, representing coal tax assessed against this company." The assesment against the company was originally made by Mr. Lewis when he was Auditor General of Pennsylvania. The company appealed to the Dauphin County Court and from that tribunal the case was carried to the state's highest appellate court.

UTAH

To Lease 40-Acre Tract.—A 40-acre tract of public land in Iron County will be offered to the highest bidder Aug. 5 at the Salt Lake City Federal Building. A royalty of 15c. per ton on all mine-run coal produced is required and there must be a minimum investment of $500 during the first three years of the lease. Production must reach a minimum of 300 tons a year commencing the fourth year of the lease.

Coal Lease at Anchor.—A 40-acre tract of coal land near the property of the Chesterfield Coal Co., Salt Lake City, is to be leased by auction at 10 a.m. July 31, at the federal land office in Salt Lake City. A royalty of 15c. a ton, mine-run, on all coal produced is demanded. A minimum investment of $500 must be made during the first three years of the lease, and a minimum of 275 tons of coal must be produced beginning with the fourth year.

Fanatic Succumbs.—Frank Staliniski, the miner who recently shot and dangerously wounded Francis D. Brown, manager of the Spring Canyon Medical Welfare Association, which handles the workmen's compensation claims of the Spring Canyon coal operators, is dead

Banning No. 2

On the left is the supply house and in the rear the lamp house. On the right are the first-aid and foreman's offices. Taken prior to reopening in August of last year.

in the County Hospital. Brown is expected to recover. He was shot in his office by Staliniski, who imagined he had a grievance in connection with the adjustment of a compensation claim. After shooting Brown the miner turned the gun upon himself.

WEST VIRGINIA

Two Tompkins Mines Sold.—Kanawha Block Coal Co., of Cedar Grove, Kanawha County, has purchased two mines from the Tompkins Fuel Co., of Charleston. The fuel company sold the mine equipment, but holds the ownership of the land in fee. No. 5 block coal is produced at the rate of 400 tons a day, while the operation producing No. 2 gas coal is not at work at present.

Paragon Colliery Co., of Huntington, has filed a certificate at the office of the Secretary of State which shows that it has reduced its capital stock from $500,000 to $25,000.

Mount Morris Mining Co. of Charleston, W. Va., with offices in the Kanawha Bank & Trust Co., surrendered its charter and is dissolved, according to a cretificate filed in the office of the Secretary of State.

Cub Fork Coal Co., of Huntington, has reduced its capital stock from $150,000 to $25,000, according to a certificate filed in the office of the Secretary of State.

Carbon Fuel Plans New Tipple.—The Carbon Fuel Co., Charleston, is expending $60,000 in improving its Nos. 5 and 7 mines, at Jochin, Kanawha County. The company is erecting a new wooden tipple with shaker screens, loading booms and other equipment and the coal from both mines will be dumped over the same tipple. It is planned to have the work completed early in October. Recently road improvements in this section have made it one of the finest mining sections in the Kanawha field, the improved road extending up Cabin Creek.

Coal Firms Dissolve.—The Erskine Coal & Land Co., a West Virginia corporation, with main offices at Staunton, Va., has been dissolved, according to a certificate filed in the office of the Secretary of State in Charleston on July 6. Rock Lick Coal Co., of Staunton, Va., a West Virginia corporation and the Comfort Coal Co., of Scranton, Pa., a West Virginia corporation also filed certificates of dissolution on the same day.

M. C. Hobart, of the Hobart Coal Co., and E. R. Ghust, both of Middleport, Ohio, who have been operating in the Pomeroy (Ohio) field, have leased a mine at Spillman, on the Ohio River near Gallipolis, Ohio, and will operate it with non-union miners.

Plans $250,000 Tipple.—The Consolidation Coal Co. has arranged to erect a new coal tipple at a cost of $250,000 at its big Pinnickinnick plant, at Clarksburg by terms of a lease just renewed on coal of the Jackson Land & Mining Co. on the northern edge of the city. The plant is to be made a central loading point for railroad fuel.

Accidents Alarm Lambie.—Alarmed by the increasing accident rate in southern West Virginia, particularly in the smokeless fields, Robert M. Lambie, chief of the state Department of Mines, started on a tour to Welch, Bluefield and Beckley on June 29. Mr. Lambie will visit mines where the fatal accident rate has been exceptionally large, it is reported. Lack of timbering in the mines, it is reported, is causing most concern to Mr. Lambie. In a recent accident a large portion of the roof fell on a miner and it was learned that he did not have a piece of timber erected. It is hinted that a number of inexperienced men are in the mines, which may be responsible for the increase in mine accidents.

Tipple Burns in Half Hour.—Fire on on June 28 destroyed the large tipple of the Hutchinson Coal Co. at Mount Clare, causing a loss of approximately $35,000. Sparks from a passing engine are thought to have started the fire, which burned so fiercely that within half an hour the structure, which was about 200 ft. long, collapsed. Before the heavy timbers had ceased to smoke workmen were busy removing the débris in preparation for the construction of a new tipple, which it is said will be of steel construction. The Mount Clare mine produces about 1,000 tons a day. A temporary structure will be used pending the construction of the permanent tipple. Until the mine is able to resume operations contracts will be taken care of at other mines.

Mining Law Violators Fined.—Thirteen men were arrested and fined $50 each recently for violations of the state mining laws, according to Robert M. Lambie, chief of the state department of mines, on July 9, who is trying to curb recklessness and carelessness in the mines. The offenses consisted of short-fusing, failure to display headlights on motors and trips, using coal dust to tamp before shooting down the coal, shooting from three to five holes simultaneously and in one mine a foreman was worked only three days a week, although the mine worked daily. Observers hint that much of the trouble is due to inexperienced men in the mines.

What was perhaps one of the largest outings ever held in the region was staged by the Miners' Association of the West Virginia Division of the Consolidation Coal Co. on July 5, when approximately 12,000 miners gathered at Gypsy and held an all-day picnic.

CANADA

Wipes Out Prospecting Abuses.—The Ontario Government has taken steps to prevent individual prospectors from staking out unreasonably large acreage in the prospective coal area north of Cochrane. Under the previous interpretation of the Ontario Mines Act it was possible for a prospector to stake out nine claims of 1 square mile each in each mining division. As the coal area north of Cochrane extends over two mining divisions, it was possible for a prospector to stake out 18 square miles. Under the regulation just adopted each prospector is limited to three claims in any section, and these cannot be duplicated in another mining division.

Dominion Coal Co. Sets Record.—The British Empire Steel Corporation collieries on June 25 produced 26,710 tons, of which 19,009 was hoisted at the Dominion Coal Co. mines in Glace Bay, Waterford. This is the highest production by the Dominion company in 11 years. The best previous day's output was 19,347 tons, on July 28, 1915.

Reports New Coal Area.—The existence of a coal area at least 50 square miles in extent, containing wide seams of better grade soft coal, similar to the Alberta bituminous, has just been established 50 miles north of the Transcontinental line of the Canadian National Railways on the James Bay slope, according to information brought back by Prof. J. W. Russell, a well-known authority, who has just returned from the north to the summer school at the University of Western Ontario. Borings, according to Professor Russell, have definitely settled all doubts about the existence of soft coal in the north. He intimates that production will start soon.

Expand Weaver Plant.—The Weaver Coal Co., Ltd., has commenced construction of an addition to its plant at Longue Pointe, and work will be rushed in an endeavor to be ready for the first vessels to arrive with Welsh anthracite after mining is resumed in Great Britain. This expansion will increase plant facilities for the production of Weaver-Welsh coal by approximately 10,000 tons per month.

Among the Coal Men

Richard A. Suppes, general manager of the Knickerbocker mines, with general offices in Johnstown, Pa., and mining operations in several communities, has resigned to become general manager of the Sullivan-Pocahontas Coal Co., of Mullen, W. Va. He will assume his new duties on Aug. 1. Mr. Suppes has been connected with the Knickerbocker company since 1913, when he started as a mine laborer, advancing rapidly to assistant mine foreman, chairman, fore-sightman, transitman, draftsman and, finally, in 1916, was made chief engineer. In 1918 he was made superintendent of the Jasahill Coal Mining Co. and the Telford Coal Co., and in 1920 was named general superintendent of the Knickerbocker operations. Mr. Suppes is the designer and inventor of a system of room and pillar mining with conveyors.

Don Davis, superintendent of the Imperial Coal Co., at Boltz, Indiana County, Pa., is confined to his home with a fracture of the right femur. His condition is reported to be good.

Duncan C. Kennedy, of Charleston, W. Va., and his family have arrived at Glasgow, Scotland, according to a cablegram last week. They will remain abroad until September. Mr. Kennedy will make a study of conditions in the British coal fields.

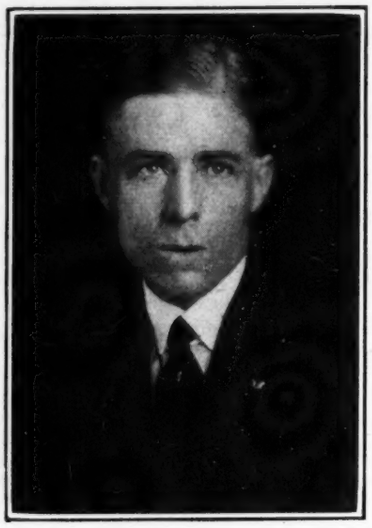
D. Cave, for fifteen years manager of the Cincinnati office of the Norfolk & Chesapeake Coal Co., has resigned. He will go to Michigan for a vacation, but other than that has no plans. His successor has not been announced. Prior to going to Cincinnati Mr. Cave was for ten years in the wholesale coal business in Chicago.

Walter Conradi, of Cincinnati, has been appointed special coal agent for the Chicago, Milwaukee & St. Paul R.R. with headquarters in Cincinnati. Mr. Conradi had a similar situation with the Chesapeake & Ohio Ry. until two years ago, when he joined the wholesale forces of the Logan County Fuel Co.

G. L. (Abe) Martin, formerly with the Harlan Straight Creek Coal Co., and previous to that with the Bewley-Darst Coal Co., in Kentucky, has resigned from the Harlan Straight Creek Coal Co. as traveling representative to accept a similar connection with the C. L. Ryley Coal Co., Lexington, Ky.

William McIntosh, superintendent for the Union Pacific Coal Co. at Superior, Wyo., has been transferred to Cumberland, where he will act in the same capacity at the mines there. **George Brown**, superintendent of the mines at Cumberland, will replace Mr. McIntosh at Superior.

The Brewerton Coal Co., of Lincoln, Ill., which recently moved its executive offices to the Illinois Merchants Trust Building, Chicago, has announced the following changes in its official family: **E. L. Carr**, appointed vice-president in charge of sales and traffic. with headquarters at Chicago; **R. D. Brown**, vice-president in charge of mining, with temporary headquarters at Harrisburg, Ill.; **Philip C. Gay**, district sales manager, headquarters at Lincoln, and **F. J. Kopecky**, auditor, at Chicago. **Ed. Brennan** and **B. H. Armstrong** have resigned to accept other positions.



Otto Herres

His recent election as chairman of the Utah section of the American Institute of Mining and Metallurgical Engineers followed not long after his elevation to the post of assistant manager of the United States Fuel Co., Salt Lake City. He formerly was assistant to the vice-president, and prior to that superintendent of the company's Hiawatha mine. He is a graduate of the Colorado School of Mines and from 1911 to 1917 was connected with the engineering department of the Utah fuel Co., much of the time as resident engineer at Castlegate, Utah, and Somerset, Colo.

Obituary

Charles Paxton Markham, one of the best known coal owners of England, died June 30 in London. He was chairman of the Staveley Coal & Iron Co., which carried on pioneer development in the Doncaster mine fields. He was a pronounced individualist and by remaining outside the English Coal Owners' Association caused much comment. At all times he maintained intimate personal relationships with the workmen in his mines and testified before the coal commission in their behalf. Eleven hundred Staveley mine workers were shareholders in the Staveley Coal & Iron Co.

John M. Bell, aged 68, a well known coal operator in the Nelsonville field, died July 2 at his home in New Lexington, Ohio, of complications.

Traffic News

Alberta to Ask Lower Rate on Coal to Winnipeg

The Board of Railway Commissioners at their next sitting at Edmonton, Alta., will be asked to give Alberta coal a $4 rate to Winnipeg from March to July. This would be $1.20 below the present rate. It is claimed that under the reduced rate Alberta coal could be laid down at Winnipeg in successful competition with Pennsylvania bituminous. Alberta coal is sold at the mine 25c. below the Pennsylvania product. The Winnipeg industrial market is estimated to consume 280,000 tons of steam coal annually.

Industrial Notes

E. E. Elzemeyer recently was elected president of the **American Pulverizer Co.**, St. Louis, Mo., and Henry Griesedieck, formerly secretary, was named vice-president and treasurer. Mr. Elzemeyer succeeds his father, who died on April 16. Mr. Griesedieck will continue actively in the management of the company.

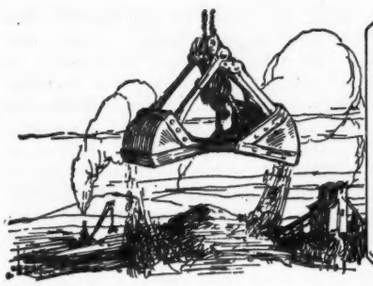
The Timken Roller Bearing Co. announces that $1,500,000 is to be spent in expanding its Canton (Ohio) plant. The new construction program includes provision for enlarged laboratory and research facilities. The new units are to be completed by Jan. 1, 1927.

Charles L. Baer of Connellsville, Pa., has been promoted from the position of assistant general manager of the Connellsville Manufacturing & Mine Supply Co., which he has held for several years, to that of general manager, to succeed Daniel F. Lepley, whose death was recently reported. No one has yet been elected to succeed Mr. Lepley as president, an office which he also held.

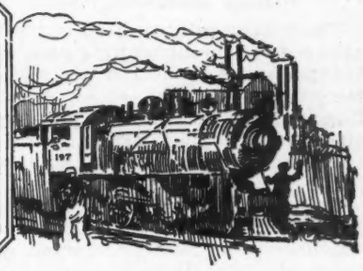
The Trico Fuse Manufacturing Co., Milwaukee, Wis., has recently appointed J. T. Sudduth & Co., of 229 Brown-Marx Bldg., Birmingham, Ala., as sales representatives for the states of Alabama and Georgia. F. J. Keller & Co., Fort Worth, are sales representatives for the state of Texas.

Lyons Fuel Hardware & Supplies, Ltd., of Sault Ste. Marie, Ont., has been organized with a capital of $2,000,000. Provisional directors are William S. Morlock, Sydney E. Wedd, Bruce V. McCrimmon and others.

The Alloy Cast Steel Co., Marion, Ohio, recently was organized by John D. Owens, C. A. Owens, M. C. McNeil, H. J. Barnhart, Frank D. Glosser, Walter A. Dorsey and E. J. Schoenlaub, all of Marion, Ohio. The company has purchased the electric steel foundry of the Fairbanks Steam Shovel Co., which recently was sold at receivers sale. The plant is now being completely overhauled and enlarged to a capacity of 400 tons of steel castings per month. Extensive additions of modern foundry equipment will be installed at once. The new company will manufacture high grade electric steel castings in carbon, manganese and other alloy steel.



Production And the Market



Activity in Bituminous Coal Market Restricted By Holiday Influences; Output Drops

Holiday influences pervaded the bituminous coal markets last week. Domestic buying, for the most part, was restricted to immediate requirements; prices fluctuated within a very narrow range, with advances offsetting reductions; production experienced a sharp but expected decline. Export trade alone escaped the midsummer indifference and continued to enjoy the brisk business developed by the British strike.

The contrast between the rates of production maintained since April 1 and the persistent complaints of inactivity in the spot market suggests the concentration of business into fewer hands, more buying under contract or quasi-contractual arrangements and increased captive mine development. With the exception of the last named, these are healthy signs. The chief adverse factors are low realizations and the maladjustment between union and non-union wage rates, which has completely upset former production balances.

Production during the week ended July 3 was estimated at 9,523,000 net tons. This was 323,000 tons, or 3.3 per cent, less than the revised total for the week ended June 26. Preliminary figures point to still greater losses last week. Loadings on July 5 dropped to 1,310 cars, or approximately one-tenth of the total reported on Memorial Day Monday and loadings on July 6 were the lowest for any Tuesday in months.

Big Production Year Forecast

Calendar year cumulative totals to July 3, however, reach figures which speak confidently of the industrial soundness of the nation. During that period the output was 271,899,000 tons, as compared with 237,007,000 tons last year and 233,887,000 tons in 1924. This cumulative total has been exceeded only once since the World War. Even when allowance is made for first-quarter gains attributable to the anthracite strike, recent figures show consistent increases over 1925.

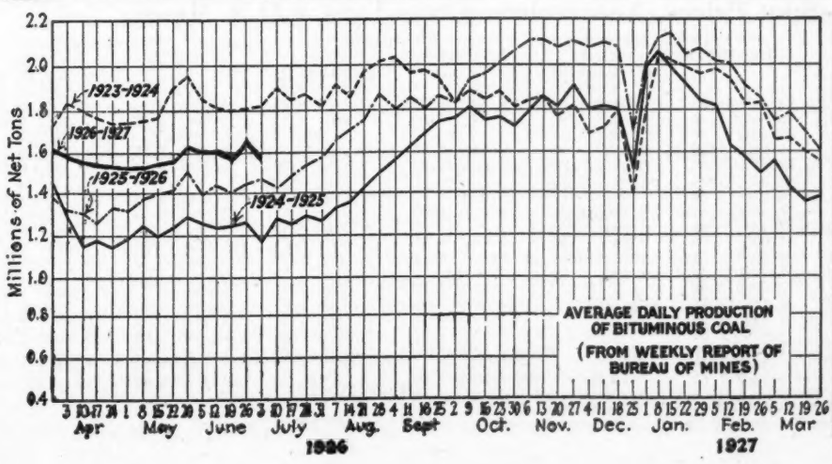
Some of the credit for these gains goes to the export trade. Increases in that division are recognized as temporary. Another sustaining factor has been the lake movement. During the week ended July 11 dumpings at the lower lake ports totaled 927,135 tons of cargo and 47,290 tons of vessel fuel. This brings the season's total to 11,613,032 tons, as compared with 9,672,170 tons last year and 7,948,556 tons in 1924.

Spot Prices Steadier

There were few changes in spot quotations last week. High-volatile pier prices at Hampton Roads weakened and there was a nickel break in the minimum on Somerset mine-run at Boston. Generally speaking, inland quotations on West Virginia coals were stronger, but eastern Kentucky lost ground. Illinois and Indiana held their recent gains. *Coal Age* Index of spot bituminous prices on July 12 was 158 and the corresponding price was $1.91—the same as on July 5.

Anthracite does not create much of a stir in the market these days. Production, however, belies some of the wails which have gone up complaining of the state of trade. Notwithstanding the fact that the mines were down until mid-February, output for the calendar year to date is only 16.9 per cent less than in 1925. On the coal-year basis, current production is approximately 3,356,500 tons ahead of 1925-26. Sales resistance, however, is mounting.

During the past week the Connellsville coke trade was extremely quiet. Production was smaller as a result of the holiday. Buying, too, was on a narrower scale. Fortunately there was little surplus tonnage to be had; spot prices, therefore, were firmly maintained.



Estimates of Production

(Net Tons)

	1925	1926
BITUMINOUS		
June 19	8,402,000	9,503,000
June 26 (a)	8,662,000	9,846,000
July 3 (b)	7,351,000	9,523,000
Daily average	1,470,000	1,587,000
Cal. yr. to date (c)	237,007,000	271,899,000
Daily av. to date	1,527,000	1,740,000
ANTHRACITE		
June 19	1,745,000	2,082,000
June 26	1,800,000	2,087,000
July 3	1,477,000	1,970,000
Cal. yr. to date (c)	44,728,000	37,152,000
BEEHIVE COKE		
June 26 (a)	127,000	187,000
July 3 (b)	119,000	164,000
Cal. yr. to date (c)	5,308,000	6,703,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.

Holiday Influences Persist

The holiday lull persisted in the Chicago market throughout the past week. Curtailment of production has added to the strength of the steam trade in Illinois and Indiana coal. Surplus screenings moving through middle houses are scarce and many mines are accumulating a back-log of unfilled orders.

The darker side of the picture is the status of the domestic coals. Even the headliners are meeting marked sales resistance, with Eastern coals as hard hit as the Western. Concessions of 25 @40c. have been made to effect prompt disposition of smokeless lump and egg. Central Illinois and Indiana price lists are unsettled by the desire of operators to clear their tracks. Franklin County is firm but quiet. Coke prices have been advanced.

A slight spurt to accelerate the movement of domestic sizes in the southern Illinois mining field soon spent itself and some cancellations followed. General steam business is fair, but railroad orders have fallen off. There has been no improvement in the Duquoin or Mt. Olive districts. Conditions in the Standard field are as bad as ever. A little storage buying of high grade domestic coals and a fair trade in cheaper grades for large apartment houses tell the story of the local St. Louis market.

Kentucky Undertone Healthy

Although prices still are uncertain and demand for western Kentucky coal has been disappointing, the undertone in the Kentucky market is healthy. There is a steady flow of coal from the mines in the eastern part of the state to the lakes. Southeastern demand is all that might be expected at this time of the year. Export orders placed in West Virginia also have helped by lessening the competition for domestic business. Western Kentucky trade and all-rail eastern Kentucky are held back by retail and consumer indifference.

Under these circumstances, operators who want to push up quotations find the outlook unpropitious. Some who made the attempt were compelled to retreat. Producers hungry for tonnage cut under the minimums established by competitors. Western Kentucky 6-in. block, for example, is quoted at $1.65@$2, but some coal has sold at $1.40. Lump, egg and nut are $1.25@ $1.75, with leaders trying to fix minimums at $1.40 and $1.50. Mine-run ranges from 90c.@$1.40 and screenings have broken to 80c., with a maximum of $1.10.

Price Situation Unsettled

Eastern Kentucky 4-in. block sells all the way from $1.75 to $2.50. High-grade mine-run has brought as high as $1.75, but there has been a lot of coal, less desirable in quality perhaps, which has sold down to $1.25. Slack is steady at $1@$1.10. This, in itself, is a good indication of the fundamentally healthy tone to general industrial demand.

The price situation again has been

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	July 13 1925	June 28 1926	July 5 1926	July 12 1926†
Smokeless lump	Columbus	$2.85	$3.10	$3.10	$3.00@$3.25
Smokeless mine run	Columbus	1.85	2.10	2.10	**2.00@ 2.25**
Smokeless screenings	Columbus	1.30	1.25	1.25	1.20@ 1.35
Smokeless lump	Chicago	3.10	3.00	3.00	2.75@ 3.25
Smokeless mine run	Chicago	1.85	1.90	1.90	1.85@ 2.00
Smokeless lump	Cincinnati	2.85	3.00	3.00	**3.00@ 3.25**
Smokeless mine run	Cincinnati	2.00	2.00	2.00	2.00
Smokeless screenings	Cincinnati	1.25	1.30	1.30	1.25@ 1.35
*Smokeless mine run	Boston	4.25	4.40	4.40	4.35@ 4.50
Clearfield mine run	Boston	1.80	1.80	1.80	1.65@ 2.00
Cambria mine run	Boston	2.00	2.10	2.10	2.00@ 2.25
Somerset mine run	Boston	1.85	1.90	1.95	*1.75@ 2.10*
Pool 1 (Navy Standard)	New York	2.25	2.60	2.60	2.50@ 2.75
Pool 1 (Navy Standard)	Philadelphia	2.60	2.65	2.65	2.50@ 2.80
Pool 1 (Navy Standard)	Baltimore	1.85	2.10	2.10	2.05@ 2.15
Pool 9 (Super. Low Vol.)	New York	2.00	2.10	2.10	2.00@ 2.25
Pool 9 (Super. Low Vol.)	Philadelphia	2.00	2.10	2.10	2.00@ 2.25
Pool 9 (Super. Low Vol.)	Baltimore	1.75	1.80	1.80	1.75@ 1.85
Pool 10 (H.Gr.Low Vol.)	New York	1.80	1.85	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.70	1.85	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.60	1.65	1.65	1.60@ 1.70
Pool 11 (Low Vol.)	New York	1.55	1.70	1.70	1.60@ 1.80
Pool 11 (Low Vol.)	Philadelphia	1.55	1.55	1.55	1.45@ 1.70
Pool 11 (Low Vol.)	Baltimore	1.40	1.60	1.60	1.60@ 1.65
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	1.40	1.40	1.30@ 1.50
Pool 54-64 (Gas and St.)	Philadelphia	1.50	1.45	1.45	1.35@ 1.55
Pool 54-64 (Gas and St.)	Baltimore	1.35	1.45	1.45	1.45@ 1.50
Pittsburgh sc'd gas	Pittsburgh	2.40	2.25	2.25	2.20@ 2.30
Pittsburgh gas mine run	Pittsburgh	2.15	2.00	2.00	1.90@ 2.10
Pittsburgh mine run (St.)	Pittsburgh	1.95	1.75	1.75	1.60@ 1.90
Pittsburgh slack (Gas)	Pittsburgh	1.50	1.25	1.25	1.20@ 1.30
Kanawha lump	Columbus	1.85	2.05	2.05	1.85@ 2.25
Kanawha mine run	Columbus	1.40	1.55	1.55	**1.40@ 1.75**
Kanawha screenings	Columbus	1.15	1.05	1.05	*.95@ 1.15*
W. Va. lump	Cincinnati	2.25	2.25	2.25	2.00@ 2.50
W. Va. gas mine run	Cincinnati	1.40	1.60	1.60	1.50@ 1.75
W. Va. steam mine run	Cincinnati	1.30	1.40	1.40	**1.35@ 1.50**
W. Va. screenings	Cincinnati	1.10	1.10	1.25	*1.00@ 1.25*
Hocking lump	Columbus	2.15	2.35	2.35	2.25@ 2.50
Hocking mine run	Columbus	1.50	1.55	1.55	1.40@ 1.70
Hocking screenings	Columbus	1.30	1.10	1.10	**1.00@ 1.25**
Pitts. No. 8 lump	Cleveland	2.20	2.15	2.15	1.80@ 2.50
Pitts. No. 8 mine run	Cleveland	1.85	1.75	1.70	*1.60@ 1.75*
Pitts. No. 8 screenings	Cleveland	1.45	1.10	1.05	**1.10@ 1.20**

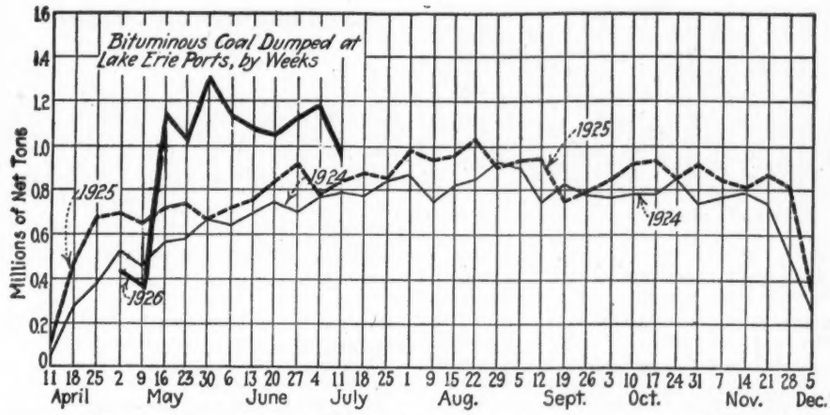
Midwest	Market Quoted	July 13 1925	June 28 1926	July 5 1926	July 12 1926†
Franklin, Ill. lump	Chicago	$2.60	$2.75	$2.75	$2 75
Franklin, Ill. mine run	Chicago	2.35	2.25	2.35	2.25@ 2.50
Franklin, Ill. screenings	Chicago	2.00	1.70	1.80	1.65@ 2.00
Central, Ill. lump	Chicago	2.35	2.40	2.40	2.35@ 2.50
Central, Ill. mine run	Chicago	2.10	2.05	2.05	**2.00@ 2.25**
Central, Ill. screenings	Chicago	1.75	1.45	1.50	1.40@ 1.60
Ind. 4th Vein lump	Chicago	2.60	2.40	2.40	2.25@ 2.60
Ind. 4th Vein mine run	Chicago	2.35	2.15	2.15	2.10@ 2.25
Ind. 4th Vein screenings	Chicago	1.80	1.60	1.75	1.65@ 1.85
Ind. 5th Vein lump	Chicago	2.25	2.15	2.15	2.00@ 2.35
Ind. 5th Vein mine run	Chicago	1.95	1.95	1.95	1.85@ 2.10
Ind. 5th Vein screenings	Chicago	1.50	1.35	1.50	1.40@ 1.60
Mt. Olive lump	St. Louis	2.50	2.35	2.35	2.25@ 2.50
Mt. Olive mine run	St. Louis	2.25	2.15	2.15	2.15
Mt. Olive screenings	St. Louis	1.75	1.55	1.55	1.50@ 1.60
Standard lump	St. Louis	2.25	2.25	2.25	2.25
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.85
Standard screenings	St. Louis	1.50	1.35	1.35	1.25@ 1.50
West Ky. block	Louisville	1.40	1.80	1.70	1.40@ 2.00
West Ky. mine run	Louisville	1.25	1.25	1.15	.90@ 1.40
West Ky. screenings	Louisville	1.00	1.05	1.00	*.80@ .90*
West Ky. block	Chicago	2.00	1.75	1.75	1.65@ 1.85
West Ky. mine run	Chicago	1.35	.95	1.15	1.00@ 1.35
South and Southwest					
Big Seam lump	Birmingham	2.00	2.30	2.45	**2.25@ 2.70**
Big Seam mine run	Birmingham	1.75	1.85	1.85	1.75@ 2.00
Big Seam (washed)	Birmingham	1.85	2.00	2.00	1.75@ 2.25
S. E. Ky. block	Chicago	2.45	2.40	2.40	2.10@ 2.75
S. E. Ky. mine run	Chicago	1.70	1.55	1.55	1.40@ 1.75
S. E. Ky. block	Louisville	2.25	2.15	2.15	*1.75@ 2.50*
S. E. Ky. mine run	Louisville	1.40	1.50	1.50	*1.25@ 1.75*
S. E. Ky. screenings	Louisville	1.05	1.05	1.05	*1.00@ 1.10*
S. E. Ky. block	Cincinnati	2.35	2.15	2.15	2.00@ 2.30
S. E. Ky. mine run	Cincinnati	1.35	1.50	1.50	1.25@ 1.75
S. E. Ky. screenings	Cincinnati	1.10	1.10	1.10	**1.10@ 1.25**
Kansas lump	Kansas City	4.00	4.00	4.00	4.00
Kansas mine run	Kansas City	3.00	3.00	3.00	3.00
Kansas screenings	Kansas City	2.00	2.40	2.40	2.35@ 2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**; declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	July 13, 1925 Independent	July 13, 1925 Company	July 5, 1926 Independent	July 5, 1926 Company	July 12, 1926† Independent	July 12, 1926† Company
Broken	New York	$2.34	.....	$8.15@$8.80	.....	$8.50@$9.25	.....	$8.50@$9.25
Broken	Philadelphia	2.39	.....	8.70	$9.25	8.50@ 9.15	$9.25	8.50@ 9.15
Egg	New York	2.34	$8.60@$8.75	8.55@ 8.80	8.40@ 8.75	8.75@ 9.25	8.40@ 8.75	8.75@ 9.25
Egg	Philadelphia	2.39	8.80@ 9.40	8.60@ 8.80	9.00@ 9.85	9.00@ 9.15	9.00@ 9.85	9.00@ 9.15
Egg	Chicago*	5.06	7.86@ 8.50	7.54@ 8.28	8.48	8.13	8.48	8.13
Stove	New York	2.34	9.00@ 9.35	9.05@ 9.30	9.00@ 9.60	9.25@ 9.50	**9.25@ 9.60**	9.25@ 9.50
Stove	Philadelphia	2.39	9.40@ 9.75	9.05@ 9.20	9.15@10.30	9.35@ 9.50	9.15@10.30	9.35@ 9.50
Stove	Chicago*	5.06	8.22@ 8.70	8.02@ 8.20	8.84	8.33@ 8.58	8.84	8.33@ 8.58
Chestnut	New York	2.34	8.25@ 8.60	8.55@ 8.80	8.25@ 8.75	8.75@ 9.15	8.25@ 8.75	8.75@ 9.15
Chestnut	Philadelphia	2.39	8.80@ 9.65	8.70@ 8.80	8.75@10.05	9.00@ 9.15	8.75@10.05	9.00@ 9.15
Chestnut	Chicago*	5.06	8.14@ 8.35	7.79@ 8.10	8.71	8.38@ 8.53	8.71	8.38@ 8.53
Pea	New York	2.22	5.00@ 5.50	5.00@ 5.80	6.00@ 6.50	6.00@ 6.25	6.00@ 6.50	6.00@ 6.25
Pea	Philadelphia	2.14	5.50@ 5.75	5.00@ 5.40	6.25@ 6.75	6.00@ 6.35	6.25@ 6.75	6.00@ 6.35
Pea	Chicago*	4.79	4.91@ 5.36	4.69@ 5.00	6.03	5.65@ 5.80	6.03	5.65@ 5.80
Buckwheat No. 1	New York	2.22	2.00@ 2.50	2.50	1.50@ 2.50	3.00@ 3.50	*1.50@ 2.25*	3.00@ 3.50
Buckwheat No. 1	Philadelphia	2.14	2.15@ 2.75	2.50	2.15@ 2.50	2.25@ 2.75	2.15@ 2.50	2.25@ 2.75
Rice	New York	2.22	1.75@ 2.00	2.00	1.25@ 1.85	2.00@ 2.25	1.25@ 1.85	2.00@ 2.25
Rice	Philadelphia	2.14	1.85@ 2.00	2.00	1.65@ 2.00	1.75@ 2.25	1.65@ 2.00	1.75@ 2.25
Barley	New York	2.22	1.35@ 1.50	1.50	1.10@ 1.35	1.50@ 1.75	1.10@ 1.35	1.50@ 1.75
Barley	Philadelphia	2.14	1.40@ 1.50	1.50	1.50@ 1.75	1.50@ 1.75	1.50@ 1.75	1.50@ 1.75
Birdseye	New York	2.22	1.35@ 1.60	1.60	1.20@ 1.60	2.00	1.20@ 1.60	2.00

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**; declines in *italics*.



uppermost in the trade at the Head of the Lakes. Expectations of stabilization after the recent price war were rudely disturbed a few days ago when on of the big factors issued a new list chopping off 25 to 50c. This circular brings Kentucky screened lump down to $6.75 @$7; stove $6.25@$6.50; Elkhorn lump, $5.50@$5.75; stove, $5.25@$5.50; Youghiogheny lump, $5; stove, $4.75; dock-run, $4.50@$4.75; screenings, $3.75@$4; Hocking and splint lump, $4.50@$4.75; stove, $4.25@$4.50; dock-run, $4@$4.25.

Anthracite prices are unchanged, but retail buying is curtailed. Unless there is an early improvement in demand, it is not unlikely that some of the docks may cut down on the tonnage of hard coal ordered forward from the mines.

June shipments from the docks totaled 12,659 cars, as compared with 11,808 cars the preceding month and 11,955 cars in June, 1925. Railroads are taking liberal quantities while general traffic is light. Stocks on the docks as of July 1 were estimated at 8,000,000 tons of bituminous coal. There also was an ample reserve of anthracite.

Buying Backward at Twin Cities

Coal buying, which should be gathering momentum at this season of the year, is backward at the Twin Cities. Uncertainty as to crop conditions is the explanation advanced for this condition. As soon as the crops begin to move, an increase in industrial activity and a better demand for domestic coal are expected. All-rail prices have been advanced in keeping with the recent increases in Illinois and Indiana mine quotations, but business is slow.

Coal is moving off the docks at Milwaukee at a fair rate. Anthracite demand is showing more life. Dock operators are watching eagerly the fight started by Iowa interests for a reduction in the all-rail rates on hard coal. Should substantial cuts be made, the dock men fear that their interests would be adversely affected.

Threshing demand for Kansas coal is keeping up the movement in that state. Screenings find a ready market, but Kansas lump drags. In Arkansas, semi-anthracite lump is sought after for storage while slack is a drug on the market. There have been no noteworthy changes in the situation in Utah and Colorado during the past week.

Broader Demand Enlivens Cincinnati

Conditions at Cincinnati are more to the liking of the coal men. The export movement has been a reliable safety valve for surplus output and has forced some lake shippers to enter the market for additional tonnage to take care of contracts. Low-volatile orders have shown a gratifying increase since the first of the month and many are wondering whether there will be a repetition of last year's experience, when late July buying sent prices skyrocketing.

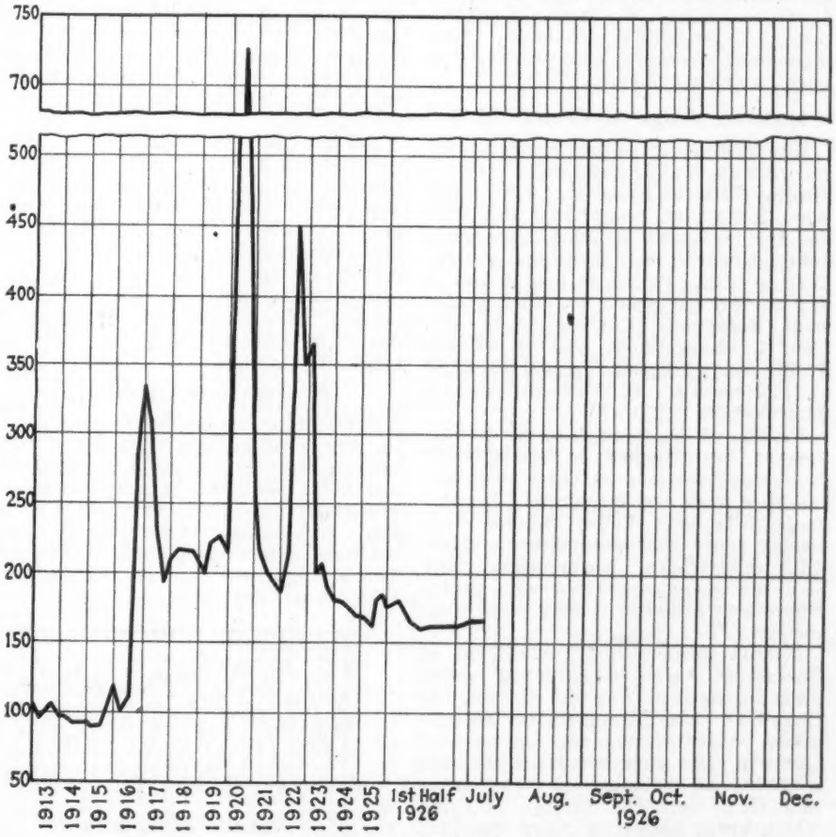
High-volatile domestic lump still drags, but egg is in a stronger position. Export orders for mine-run also have been a strengthening factor; the $1.25 figure, which ruled for so long, is disappearing from current quotations. Smokeless slack remains in a rut. The local retail situation at Cincinnati is steady.

Movement of coal through the Cincinnati gateway decreased 2,882 cars last week. The total number of loads interchanged, however, was 590 cars above the total for the same week in 1925. Included in this total of 10,999 cars, were 3,240 cars of lake coal en route to Toledo and Sandusky. The lake interchange was 493 cars less than the preceding week. Movement of empties to the mines—11,686 cars—showed a decline of 1,807 cars.

Central Ohio Holds Ground

There has been no break in the stronger demand for domestic sizes which began to develop in central Ohio several weeks ago. At first the chief support of this demand were the city dealers. They have since been reinforced by country retailers and by contracts for schools in different parts of the state. Householders, too, are placing orders with the retailers. An increase of 25c. in retail prices at Columbus is expected. Steam business still is a dull affair and some quiet concessions have been made to move slack.

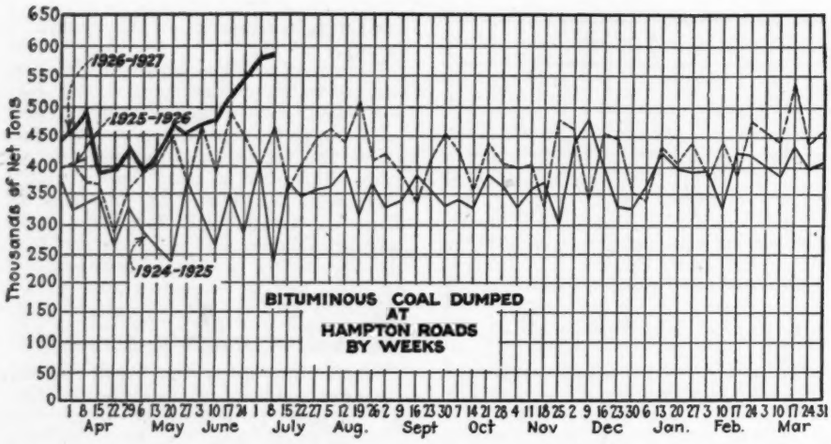
For the first time in several weeks, there has been a slightly stronger tone to the Cleveland market. A more active demand for slack and nut-and-slack pushed quotations up 10@15c. Other sizes, however, were weak and some



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1926				1925	1924
	July 12	July 5	June 28	June 21	July 13	July 14
Index	158	158	157	157	160	162
Weighted Average price	$1.91	$1.91	$1.90	$1.90	$1.93	$1.96

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.


1926-1927
1925-1926
1924-1925
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Thousands of Net Tons
Apr May June July Aug. Sept Oct Nov Dec Jan. Feb. Mar

Car Loadings and Supply

	Cars Loaded: All Cars	Cars Loaded: Coal Cars
Week ended July 3, 1926	1,072,624	172,713
Week ended June 26, 1926	1,062,252	180,270
Week ended July 4, 1925	864,852	134,030
Week ended June 27, 1925	991,341	150,473

	Surplus Cars: All Cars	Surplus Cars: Coal Cars	Car Shortages: All Cars	Car Shortages: Coal Cars
June 30, 1926	Figures not available		.....	.....
June 23, 1926	270,162	76,594	.....	.....
June 30, 1925	307,495	109,404	.....	.....

odd lots of No. 8 mine-run went at $1.60. During the week ended July 3 the No. 8 field produced approximately 189,000 tons, or 27 per cent of capacity, as compared with 202,000 tons the preceding week and 182,000 tons the week ended July 4, 1925. Southern Ohio production still hangs around 15 to 18 per cent of capacity.

Marketing conditions in the Pittsburgh district have not changed materially in several weeks. Producers are regulating output to the demand so that there is no distress coal to further depress quotations. Consumption in the district is well maintained, but much of the coal used comes from the captive mines. Commercial producers have abandoned efforts to force tonnage on bargain-driving buyers.

Moderate Gains in Central Field

Car loadings in central Pennsylvania record a moderate expansion in demand. During the week ended July 3, the total was 12,303 cars, or 677 cars less than for the last week in June. The June totals, however, were 2,121 cars greater than in May. Prices on pool 1 and 71 are up, but quotations on other grades have weakened. Current prices are: Pool 1, $2.40@$2.60; pool 71, $2.25@$2.40; pool 9, $2@$2.15; pool 10, $1.70@$1.90; pool 11, $1.55@$1.70; pool 18, $1.40@$1.60.

Pittsburgh No. 8 slack in the Buffalo market has dropped to $1.15@$1.20. Nominal quotations on other sizes and on other coals are unchanged. Reports from Allegheny Valley mining companies agree that production is gradually diminishing. Nevertheless, there still are many operators who prefer running at a loss to closing down completely.

Export demand and curtailment in production have strengthened steam coals in the New England market, but there has been no appreciable gain in actual coastwise demand. On the contrary, in some directions there has been a falling off in industrial consumption and it is only the foreign shipping which keeps prices on Navy Standard at Hampton Roads pegged around $4.50, with second grades 15c. less. Straight cargoes of mine-run are preferred over mixed boatloads.

New England Prices Firm.

Firmer prices at the southern piers are reflected in quotations for inland delivery at Boston. Ten days ago the range was $5.25@$5.35; the minimum now is $5.40. Local competition at Providence and Portsmouth, however, kept the prices on cars at those ports down to the $5.25@$5.35 range. Movement of all-rail coals from central Pennsylvania is restricted to Connecticut valley points as it is impossible for Pennsylvania shippers to meet tidewater quotations on West Virginia low-volatiles.

Optimism is growing in the New York bituminous trade although buyers still procrastinate in the actual placement of orders. Considerable export business is being placed through local houses, but complaint is made of the handicap of high vessel rates on British bottoms. Kanawha mine-run is quoted at $1.60 for export; screened coals are held at $1.75@$1.85. New York bunker trade is fair.

Aside from some inquiries for high-volatiles for foreign loading, Philadelphia bituminous activity has been disappointing. Local buyers still hold back on orders. Industrial stockpiles are dwindling, but this seems to occasion no concern. The export situation continues to dominate the Baltimore market. The permit-embargo system now is in vogue at Curtis Bay. Vessel rates are jumping.

Birmingham Market Lags

Coal buying is virtually at a standstill in the Birmingham district. Spot orders for steam sizes are scattered and bulk small in aggregate tonnage. Movement on commercial contracts is fair. In a number of cases retail dealers have ordered shipments suspended. Prices nominally are unchanged, but both steam and domestic coal of the less favored grades can be had at concessions.

Anthracite is in steady demand in the New York market. Stove continues to lead in popularity, with egg second. Chestnut is so backward that some producers are putting this size into storage. Pea also is easier. A surplus of steam sizes keeps prices down. Barley is sacrificed less, however, than buckwheat or rice.

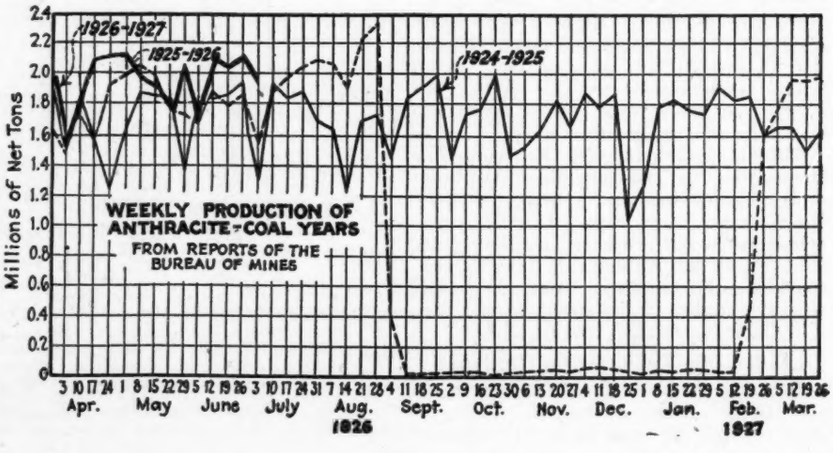
A little buying flurry at the beginning of the month has been succeeded by a deadly calm in the Philadelphia anthracite market. Circular prices are unchanged and there is nothing to indicate any early revision. The larger independents are endeavoring to maintain price stability on their product, but concessions are freely quoted on other tonnage and blocks of coal have been sold at lower figures in other markets.

Stove Maintains Leadership

As at New York, stove coal is maintaining its reputation for leadership in the Philadelphia market. It is not, however, the haughty command of other days. The other domestic sizes are less active, and all would drag worse than they do were it not for the curtailment in production practiced by some of the producers. The position of the steam sizes has not improved. The Baltimore market is featureless.

The local trade in anthracite at Buffalo is uninteresting. Shipments by the lakes from that port during the week ended July 8 totaled 96,400 net tons. Of this quantity, 42,000 tons were cleared for Duluth and Superior, 26,000 tons for Milwaukee, 11,300 tons for Chicago, 9,300 tons for Sheboygan, and 1,800 tons for Racine.

Post-holiday buying of Connellsville coke has been small. This lack of buying, however, has been matched by an equal scarcity of floating free tonnage. The result has been the maintenance



of a $2.85@$3 level on spot furnace coke and no break in the $4@$4.50 range on standard foundry grades.

During the week ended July 3, according to the Connellsville *Courier*, the Connellsville and Lower Connellsville region produced 138,200 net tons of coke, or 1,710 tons less than during the week ended June 26. Furnace-oven output was 73,500 tons, a decrease of 1,400 tons; merchant-oven output, 64,700 tons, showed a decline of only 310 tons.

McDowell County Leads in West Virginia Coal Output

McDowell continues to be the chief coal-producing county of West Virginia, according to the 1925 figures recently issued by Robert M. Lambie, chief of the state Department of Mines. Last year this county produced 21,130,768 tons, an increase of 3,269,860 tons compared to 1924. Logan County was next with a production of 20,527,313 tons, an increase of 2,958,006 tons. Raleigh County ranked third with 12,102,851 tons, an increase of 1,947,855 tons. Monongalia County produced 8,338,038 tons, an increase of 1,755,955 tons; Harrison County, 5,953,093 tons, a decrease of 794,349 tons; Marion County, 4,812,417 tons, a decrease of 153,346 tons.

Production in the other counties in 1925 was as follows: Barbour, 2,089,138 tons; Boone, 3,333,286 tons; Braxton, 281,237 tons; Brooke, 1,549,167 tons; Clay, 1,010,598 tons; Fayette, 10,757,677 tons; Gilmer, 137,182 tons; Grant, 65,509 tons; Greenbrier, 1,322,738 tons; Hancock, 9,200 tons; Lewis, 53,312 tons; Lincoln, 201,084 tons; Marshall, 1,844,693 tons; Mason, 46,024 tons; Mercer, 3,571,845 tons; Mineral, 301,437 tons; Mingo, 5,559,609 tons; Nicholas, 206,014 tons; Ohio, 2,527,832 tons; Preston, 2,036,653 tons; Putnam, 236,536 tons; Randolph, 602,230 tons; Taylor, 1,181,257 tons; Tucker, 1,070,329 tons; Upshur, 831,042 tons; Wayne, 171,566 tons; Webster, 40,764 tons; Wyoming, 2,268,496 tons.

During 1925 the ovens of West Virginia produced 503,789 tons of coke, which was distributed over the various counties as follows: Fayette, 184,803 tons; Marion, 14,781 tons; McDowell, 145,860 tons; Mercer, 27,862 tons; Monongalia, 19,919 tons; Preston, 82,766 tons; Randolph, 6,220 tons; Tucker, 2,408 tons; Upshur, 1,880 tons.

Wagon mines of the state produced 1,000,000 tons of coal, according to estimates made by the state Department of Mines, while other types of mines produced 122,061,985 tons, making a grand total of 123,061,985 tons of coal produced.

There were 793 companies operating 1,208 mines, according to the report. Inside men employed numbered 92,911, while the outside forces aggregated 18,797, making a grand total of 111,708.

Wage Squabble Blows Over In Western Kentucky

Threatened trouble over wage reductions in some of the smaller mines of the western Kentucky field has been averted, according to late advices. At the Pacific Coal Co. plant, Mercer, it was reported that the men who walked out a few days ago rather than accept a cut under the 1917 scale, had returned to work at the old scale of wages. They quit on June 30, when an effort was made to cut the 1917 scale by 20 per cent. At the Hayden Coal Co. plant, it is expected that the workers will be back in a few days, an agreement not having been reached yet.

Reports from Central City are to the effect that an effort to arrange a meeting of miners there last Sunday, for reorganization of the old union, which was smashed over the Jacksonville agreement, didn't amount to much, miners not showing much interest in the movement. A few weeks ago the Norton Coal Co., Nortonville, Ky., endeavored to cut wages, had a strike, and changed its policy back to the old scale. Operators are opposing any change in present conditions.

Utilities Consume Less Coal As Power Output Declines

Public-utility power plants in the United States consumed 3,078,776 net tons of coal in May, according to the U. S. Geological Survey, compared with 3,126,485 tons in the preceding month. Fuel-oil consumption by these plants in May totaled 632,878 barrels, against 647,523 barrels in April.

The average daily production of electricity by public-utility power plants in May was 187,300,000 kw.-hr., about 3 per cent less than the average daily output in April. The total output for the five-month period, January to May inclusive, of this year was about 29,500,000,000 kw.-hr., an increase of about 12 per cent over the same period for 1925. The output by the use of water power for these months in 1926 was 10,750,000,000 kw.-hr., an increase of 13 per cent over the same period for 1925. The output by the use of water power has begun to decline due to the beginning of the low-water season.

Railroad Fuel Costs in April Lower Than Last Year

Class 1 railroads of the United States consumed 8,062,963 net tons of coal in locomotives in freight and passenger service during April, 1926, according to a report by the Interstate Commerce Commission. Consumption by districts was as follows: Eastern, 3,849,287 tons; Southern, 1,957,266 tons; Western, 2,256,410 tons. During the corresponding month of 1925 the totals were 3,508,323, 1,781,916 and 2,058,676 tons, respectively, and 7,348,915 tons for the United States.

The average cost of the coal per ton in the Eastern district in April, 1926, was $2.70; Southern, $2.21; Western, $2.94; United States, $2.65. Compared with April, 1925, these figures represent decreases as follows: Eastern district, 15c.; Southern, 13c.; Western, 13c., and for the entire country, 14c.

Coal Produced in Tennessee and Texas in 1924[a]

(Exclusive of product of wagon mines)

State and County	Net Tons: Loaded at Mines for Shipment	Net Tons: Sold to Local Trade and Used by Employees	Net Tons: Used at Mines for Steam and Heat	Net Tons: Made Into Coke at Mines	Net Tons: Total Quantity	Value: Total	Value: Average per Ton	Number of Employees: Underground Miners b	Number of Employees: Underground All Others	Number of Employees: Surface	Number of Employees: Total	Average Number of Days Worked	Average Tons per Man per Day
TENNESSEE:													
Anderson	647,079	10,385	14,330	.....	671,794	$1,187,000	$1.77	670	290	146	1,106	158	3.85
Campbell	941,960	18,464	31,165	61,707	1,053,296	2,297,000	2.18	1,374	460	335	2,169	172	2.83
Claiborne	848,309	8,921	14,448	.....	871,678	1,931,000	2.22	776	321	213	1,310	148	4.50
Fentress	250,204	8,885	4,965	.....	264,054	527,000	2.00	318	80	56	454	158	3.69
Grundy	219,719	1,015	995	9,311	231,040	608,000	2.63	481	91	75	647	122	2.93
Hamilton	109,492	3,877	7,487	.....	120,856	290,000	2.40	277	92	76	445	119	2.28
Marion	202,038	3,003	5,918	.....	210,959	512,000	2.43	367	106	122	595	158	2.25
Morgan	265,047	1,951	10,320	36,900	314,218	582,000	1.85	399	248	102	749	172	2.44
Overton	121,455	800	927	.....	123,182	246,000	2.00	159	45	42	246	132	3.80
Roane	870	1,916	5,204	122,283	130,273	360,000	2.76	107	144	38	289	294	1.53
Scott	171,950	4,891	4,501	.....	181,342	275,000	1.52	205	105	64	374	169	2.87
Other counties c	364,750	9,592	9,521	.....	383,863	896,000	2.33	593	254	134	981	149	2.62
Total	4,142,873	73,700	109,781	230,201	4,556,555	9,711,000	2.13	5,726	2,236	1,403	9,365	159	3.05
TEXAS:													
Bituminous d	151,718	3,057	8,421	.....	163,196	633,000	3.88	473	137	120	730	148	1.51
Lignite e	967,330	4,199	12,286	.....	983,815	1,088,000	1.11	953	319	193	1,465	174	3.85
Total	1,119,048	7,256	20,707	.....	1,147,011	1,721,000	1.50	1,426	456	313	2,195	166	3.16

a Note that the coal statistics of the Geological Survey for a given year include only the mines that had an output in that year. Many mines that operated in 1923 produced no coal in 1924; moreover, many of the mines that did produce in 1924 worked for a short time only. The number of active mines of commercial size in Tennessee was 191 in 1923 and 139 in 1924; in Texas, 44 in 1923 and in 1924.

b Includes also loaders and shotfirers.

c Bledsoe, Cumberland, Putnam, Rhea, Sequatchie and White.

d Erath, Maverick, Palo, Pinto, Webb and Wise.

e Anderson, Bastrop, Bexar, Henderson, Hopkins, Houston, Lee, Leon, Milan, Nacogdoches, Shelby, Titus and Wood.

Statistics issued by U. S. Bureau of Mines.

Foreign Market And Export News

Demand Swamps French Mines

Paris, France, June 23.—With imports from other Continental coal-producing countries at a minimum, French mines are hard pressed to meet the overload in home demand cast upon them by the British strike. What little foreign coal there is in the country is held at high prices. To add to the difficulties, railroad rolling stock has been diluted by the movement of cars toward French and Belgian ports to carry coal for transshipment to England.

This latter situation is reacting upon the fluidity of delivery to the French consumers. Although the Ministry of Public Works has denied that exports of French coal to Great Britain will interfere with home supplies, it is considered significant that there are rumors of the early utterance of a decree forbidding exports.

Russian anthracite cobbles are quoted by Parisian retailers at 550@590 fr.—an advance of 30 fr. in the past fortnight. Lean anthracitic mixtures are up 20@75 fr., putting nuts at 560@580 fr.; cobbles, 530@550, and peas, 420@440 fr.

Receipts of German indemnity coal last month did not exceed 396,000 tons and receipts of non-reparation coal were about one-tenth of the April deliveries. During May, however, over 450,000 metric tons of coal and 10,000 tons of patent fuel arrived from Great Britain. Total imports for the month were: Coal, 1,219,532 tons; coke, 474,417; patent fuel, 90,794 tons, as compared with 1,571,105, 436,827 and 73,966 tons, respectively, in April.

May exports totaled 384,924 tons of coal, 23,176 tons of coke and 19,984 tons of patent fuel. Exports showed little decrease from April figures, which were 386,400 tons of coal, 31,311 tons of coke and 15,642 tons of patent fuel.

Belgian Prices Skyrocket

Brussels, Belgium, June 24.—Sharp advances in prices on Belgian coals continue. The speculative elements in the trade are aided by the panicky overbuying of consumers, who are duplicating orders in their eagerness to protect themselves from the shortage created by the British strike. Further unsettlement is created by threats of labor troubles at some of the mines and by the natural drift of the men from the pits during the summer season.

Lean duffs, now quoted at 100@110 fr., are practically unobtainable. Coking smalls are strong at 117.50 fr., and duffs for lime and brick-making readily bring 85@95 fr. Domestic bituminous and semi-bituminous grades also are rising in price and anthracitic coals are almost unprocurable, even when as high as 250 fr. is bid. Syndicate prices on Belgian coke for July have been fixed at 155@175 fr.

The Belgian State Ry. will soon begin consideration of prices for coal for July and later deliveries. These prices take into account wage rates and cost of living indices. It is rumored that the railroad officials will offer 105@107 fr. for semi-bituminous smalls, and 155 @165 fr. for briquets for July delivery, based upon an exchange rate of 130@150 fr. to the pound sterling.

Belgian miners, said a cable from Antwerp, went on strike on July 3 to support a demand for a wage increase of 5 fr. daily. The strikers claim that this advance is necessary to meet the high cost of living.

Canadian Coal Output Drops 3.5 per Cent in 1925

Canada produced 13,134,968 tons of coal valued at $49,261,951 in 1925, as compared with 13,638,197 tons valued at $53,593,988 in 1924, a decrease of 3.5 per cent in quantity and 8 per cent in value, according to a report issued by the Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa.

Imports of all grades of coal totaled 16,832,435 tons in 1925, as against 16,828,578 tons brought in during the previous year. Exports amounted to 785,910 tons during 1925, as compared with 773,246 tons in 1924.

Nova Scotia produced only 3,842,978 tons in 1925 as compared with a total of 5,557,441 tons in 1924, the decreased output being largely accounted for by the strike in the earlier part of the year. New Brunswick contributed 208,012 tons in 1925 as against 217,121 tons in 1924. Saskatchewan's output remained fairly constant at 471,965 tons for 1925 and 479,118 tons for 1924. The province of Alberta held the premier position with an output of 5,869,031 tons, which was 679,302 tons above the 1924 production of 5,189,729 tons. British Columbia showed a slight advance to 2,742,252 tons in 1925 from 2,193,667 tons in 1924.

There were 25,032, people including 1,542 salaried employees, engaged in or about the mines during 1925, to whom $33,200,309 was paid in salaries and wages. Average wages earned per man per day were $5.51 in 1925 as against $5.62 during 1924. The surface men worked on the average 261 days during the year as compared with 257 days during 1924, and the underground employees averaged 221 days during 1925 as against 210 in the preceding year.

Including the cost of properties, equipment, supplies on hand, cash in bank and collectable accounts on the books at the close of the year there was invested in Canadian coal mines a total of $145,006,440 in 1925 as compared with $146,711,531 reported in the previous year.

Alaska Coal Land Leased

A coal lease on 1,210 acres of public lands in Alaska was authorized to be issued to the Rawson Coal Co. by the Interior Department July 2. The land is located in the Matanuska field, Seward Meridian. Under the terms of the lease the company must pay a royalty to the government of 2c. per ton, mine-run, on all coal produced. It is also required to make an investment of $121,000 on the property during the first five years of the lease. Issuance of the lease will be made through the land office at Anchorage, Alaska. The company was awarded the lease under a preference right derived from a permit to explore coal previously issued by the government.

Export Clearances Week Ended July 8

FROM HAMPTON ROADS

	Tons
For United Kingdom:	
Ital. Str. Carmania	6,923
Br. Str. Gallic Prince	9,681
Br. Str. Galtymore	4,491
Br. Str. Mountpark	3,748
Br. Str. Slavic Prince	9,650
Br. Str. Tartar Prince	7,209
Grk. Str. Kate	7,339
Ital. Str. Pellegrina	6,565
For Canada:	
Br. Str. Lendria, for Quebec	5178
For Argentina:	
Br. Str. Trevelgan, for Buenos Aires	6,190
Br. Str. Oreland, for Buenos Aires	6,068
Br. Str. Newton Ash, for Buenos Aires	6,353
For Cuba:	
Br. Str. Berwindmoor, for Havana	9,603
For Italy:	
Ital. Str. Columbia, for Venice	5,475
For England:	
Du. Str. Eiebergen, for Land's End	7,080
For Ireland:	
Br. Str. Chulmleigh, for Queenstown	7,629
For Cape Verde Islands:	
Br. Str. Antar, for St. Vincent	9,470
For Newfoundland:	
Nor. Str. Marstene, for Cornerbrook	2,775
For Uruguay:	
Nor. Str. Primero, for Montevideo	4,390
For Danish West Indies:	
Dan. Str. Norden, for Curaçao	4,041
For West Africa:	
Ital. Str. Enrichetta, for Dakar	7,127
For Egypt:	
Br. Str. Calchas, for Port Said	2,474

FROM BALTIMORE

For British Possessions:	
Nor. Str. Tonefjell, for Gibralter	3,483
For England:	
Br. Str. Medmenham, for Dover	5,808
For Italy:	
Ital. Str. Cadore, for Genoa	8,241

Hampton Roads Coal Dumpings*

(In Gross Tons)

	July 1	July 8
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week	173.207	195,218
Virginian Piers, Sewalls Pt.:		
Tons dumped for week	119,003	125,757
C. & O. Piers, Newport News:		
Tons dumped for week	230,314	196,672

* Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

Pier and Bunker Prices, Gross Tons

PIERS

	July 3	July 10†
Pool 1, New York	$5.40@$5.65	$5.40@$5.65
Pool 9, New York	4.90@ 5.15	4.90@ 5.15
Pool 10, New York	4.60@ 4.85	4.60@ 4.85
Pool 11, New York	4.35@ 4.50	4.35@ 4.50
Pool 9, Philadelphia	4.85@ 5.20	4.85@ 5.20
Pool 10, Philadelphia	4.60@ 4.85	4.60@ 4.85
Pool 11, Philadelphia	4.30@ 4.55	4.30@ 4.55
Pool 1, Hamp.Roads	4.45@ 4.50	4.45@ 4.50
Pool 2, Hamp.Roads	4.30	*4.25@ 4.30*
Pool 3, Hamp.Roads	4.15@ 4.25	*4.00@ 4.10*
Pools 5-6-7, Hamp.Rds.	4.30@ 4.40	*4.20@ 4.30*

BUNKERS

Pool 1, New York	$5.65@$5.90	$5.65@$5.90
Pool 9, New York	5.15@ 5.40	5.15@ 5.40
Pool 10, New York	4.85@ 5.10	4.85@ 5.10
Pool 11, New York	4.60@ 4.75	4.60@ 4.75
Pool 9, Philadelphia	5.10@ 5.35	5.10@ 5.35
Pool 10, Philadelphia	4.90@ 5.10	4.90@ 5.10
Pool 11, Philadelphia	4.55@ 4.85	4.55@ 4.85
Pool 1, Hamp.Roads	4.50	4.45@ 4.50
Pool 2, Hamp.Roads	4.35	*4.25@ 4.30*
Pools 5-6-7, Hamp.Rds.	4.40	*4.20@ 4.30*

† Advances over previous week shown in **heavy type**; declines in *italics*.

Coming Meetings

Fourth Annual West Virginia First-Aid Contest and First Annual Safety Day, Camden Park, Huntington, W. Va., Aug. 21. Managing Director, W. H. Forbes, Federal Building, Huntington.

Fifth International First-Aid and Mine-Rescue Contest, San Francisco, Calif., during the first week of September, 1926, under auspices of Bureau of Mines, Department of Commerce.

New York State Coal Merchants Association. United States Hotel, Saratoga Springs, N. Y., Sept. 2-4. Executive secretary, G. W. F. Woodside, Dolan Bldg., Albany, N. Y.

Rocky Mountain Coal Mining Institute. Glenwood Springs, Colo., Sept. 9-11. Secretary, Benedict Shubart, Boston Building, Denver, Colo.

American Institute of Mining and Metallurgical Engineers. Oct. 6-9, at Pittsburgh, Pa. Secretary, H. Foster Bain, 29 West 39th St., New York City.

National Safety Council. Oct. 25-29, at Detroit, Mich. Managing director, W. H. Cameron, 108 East Ohio St., Chicago, Ill.

National Industrial Traffic League. Commodore Hotel, New York City, Nov. 17 and 18. Executive secretary, J. W. Beek, Chicago, Ill.

Coal Mining Institute of America. Annual meeting, Chamber of Commerce, Pittsburgh, Pa., Dec. 8, 9 and 10. Secretary, H. D. Mason, Jr., Box 604, Ebensburg, Pa.

Recent Patents

Coal-Cutting Knife; 1,572,430. William T. Hanna, Cincinnati, Ohio. Feb. 9, 1926. Filed Sept. 8, 1924; serial No. 736,519.

Mounting for Conveyor Belts; 1,572,555. Gus Nelson, Douglas, Ariz. Feb. 9, 1926. Filed June 12, 1924; serial No. 719,638.

Electric Blasting Cap; 1,572,676. Albert Leslie Oliver, Oakland, Calif. Feb. 9, 1926. Filed May 2, 1925; serial No. 27,443.

Adjustable Apparatus for Feeding and Separating Coal; 1,573,035. Francis H. Blatch, Hazleton, Pa., assignor to Anthracite Separator Co., Hazelton, Pa. Feb. 16, 1926. Filed Nov. 4, 1920; serial No. 421,644.

Coke Releasing Device for Vertical Retorts; 1,573,145. Paul H. Douglas and Ivor D. Thomas, Cleveland Heights, Ohio, assignors to the Wellman-Seaver Morgan Co., Cleveland, Ohio. Feb. 16, 1926. Filed Dec. 10, 1923; serial No. 679,585.

Valve for Rock Drills; 1,573,457. Fred M. Slater, Easton, Pa., assignor to the Ingersoll-Rand Co., Jersey City, N. J. Feb. 16, 1926. Filed Oct. 24, 1923; serial No. 670,396.

Mining Machine; 1,573,564. Hess P. Morgan, Lisbon, Ohio. Feb. 16, 1926. Filed March 31, 1924; serial No. 703,137.

Loading Apparatus; 1,573,728. John E. Manning, Beckley, W. Va. Feb. 16, 1926. Filed Nov. 28, 1923; serial No. 677,444. Renewed July 16, 1925.

New Equipment

Portable Adder Lightens Office Work

A low-cost, portable adding machine for retail stores, offices, weigh houses and the like has been developed by the Burroughs Adding Machine Co., of Detroit, Mich. This new machine is notable both for its compactness and its light weight. On a desk or counter it takes up little space, slightly more than the average letterhead. It can be carried easily from place to place for use wherever needed.

Saves Much Work in Office Commissary or Weigh House

This little portable adding machine takes only small space. It will register a total up to, but not including, one million with two decimal places. Mechanization is as well adapted to the office as to the mine.

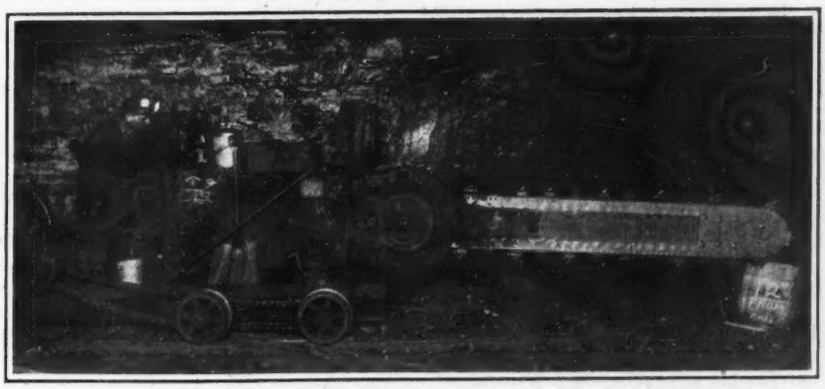
In many ways this portable can be compared with the larger machines of this builder. It is equipped with a standard keyboard containing eight rows of keys, and it has a total adding capacity of $999,999.99. Its work is "visible," always in full view of the operator. It is also equipped with the regular keyboard features of the larger machines such as total and sub-total keys, error key, repeat key and non-add key.

Speedy operation of the machine is assured by the one-hand control design. Only one hand is needed for operating the entire keyboard as well as the adding and printing mechanism. The left hand is always free to follow or turn the items that are being added. It uses standard-width roll paper, but the carriage is wide enough so that the machine can be used for making out bank-deposit slips, customers' statements, and various business reports. This machine is not limited to any particular kind of work. In fact, it was designed to handle practically all kinds of adding encountered in the small business office where the volume of work requires a simple, inexpensive machine.

Center-Shearing Machine Aids Shooting of Coal

To make a vertical cut in the coal face preparatory to shooting, the Sullivan Machinery Co. of Chicago, Ill., has developed the Ironclad shearing machine, Type CH-11, shown in the accompanying illustration.

This shearer consists of a rectangular body of three sections, containing respectively the cutter head, motor and feed gear or control. To the cutter head the bar with its endless chain carrying the cutter bits is attached. Either alternating or direct current may be employed. The machine proper is placed on a Type G self-propelling truck, a reinforced mounting being provided for the cutter bar. A large brake drum with an extra-heavy band and a long hand-lever which serves to lock this bar securely at any angle desired is also provided. The main feed shaft is horizontal and extends through the side of the casing where it carries two sprockets. The inner one, or that nearest the machine, engages the feed chain which swivels the cutter bar up and down. The outer sprocket carries the



Shearing Machine Shown Rounding a Curve with Cutter Extended

This shows a machine moving from one place to another within the mine. It will be observed that although the cutter bar is comparatively long, is shown in a horizontal position and the curve upon which the machine is standing is sharp, the end of the bar extends only 12 in. beyond the outer rail. The importance of this comparatively small clearance will be promptly recognized by all mining men.

chain that propels the truck. The arrangement is such that the drive may be operated by a clutch independent of the feed-chain sprocket, giving a traveling or traversing speed along the track of 275 ft. per minute.

According to the feed gears used, track speeds of 275 ft., 20 ft. and from 15 to 36 in. per minute may be obtained. All these speeds are needed in different operations. The cutter bar does not descend through the coal merely by its own weight, but is brought down under power with a pull of 12,000 lb. on the idler sheave, located on the cutter-bar yoke. Means are also provided for feeding the machine against the face with a positive motion independent of the action of the wheels on the track. This is essential in mines where the rooms are driven up the pitch, or in which the machine may not have sufficient traction to sump itself in.

In many respects this shearer corresponds to the CH-8, Longwall machine, built by the same manufacturer. Totally enclosed motor casings are provided with every machine. Cutter chains of any desired lacing plan (cutter-bit position) may be obtained, depending upon the character of the coal to be cut.

It is claimed that less exertion is required to operate this shearing machine than is necessary with either a long- or shortwall undercutter. It is usually desirable that a competent operator should demonstrate the possibilities of this machine to the men who are going to use it as the principle of operation naturally is radically different from that of undercutters. Any competent mining machine runner, however, can soon learn to get the most out of a shearing machine.

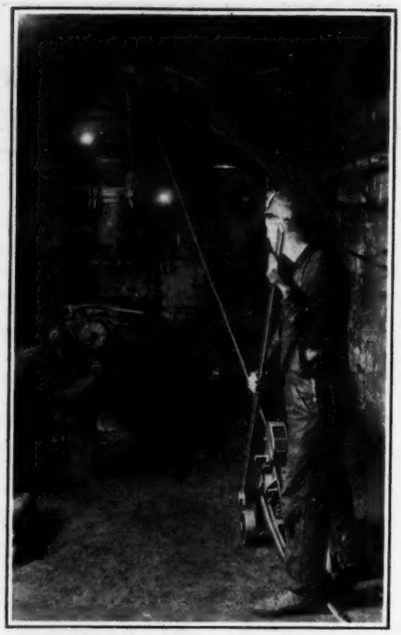
Some of the more important dimensions of this machine are as follows: Height on truck with 12-in. wheels, 43 in.; net weight, 9,000 lb.; length of cutter bar, 4½ to 7½ ft.; width of kerf, 5 in.; feed, 15 to 36 in. per min. The track gage of the truck may vary from 21 to 48 in. but the gage desired should be carefully specified when a machine is ordered.

Machines of this kind can be furnished for operation upon either 250 or 500 volts, direct current. They are also built for 3-phase alternating current, of either 30, 40, 50 or 60 cycles and in voltages of 220, 440, 550 and 600. The truck wheels also may be either 10, 12 or 14 in. in diameter as may be specified by the purchaser.

A Powerful Little Puller

Occasions frequently arise in and about the mine when something heavy must be pulled, transported or lifted. The little lifting jack shown in the accompanying illustration, known as the Handy-Andy puller, and manufactured by the John Waldron Corporation, of New Brunswick, N. J., has been designed to fill exactly such needs. It is a compact unit, simple in construction, rapid in operation, and easy to handle. It is practically a pulling-jack.

This machine is constructed of steel throughout, no cast iron being employed. It is fitted with two small truck wheels to facilitate its transportation from place to place. It is built for operation by one man, and two speeds of cable pull may be obtained.



Ready to Lift a Pump Chamber

This shows a Handy-Andy in the pump room of an anthracite colliery. The simplicity of the hook-up will be readily perceived. In this case a tail cable or anchor is attached to the rear end of the machine, and the lifting cable led over a snatchblock and then down to its fastening on the valve chamber. Weights up to 10 tons can be readily lifted in this manner, and by the aid of two tackle blocks pulls up to 40 tons can be readily exerted.

Without the aid of tackle and in a straight line this machine is said to exert a pull of 10 tons. With one block, therefore, it naturally will pull 20 tons and with two blocks, 40 tons. The drum holds 60 ft. of ⅝-in. cable. It is designed so compactly that it can be used in close quarters, and it will work in any position on the ground, or in the air, when an extra heavy pull is put upon it. It is fitted with an automatic reverse which enables a man to lift a load, and then lower it again. The operating bar or lever is 5 ft. long, making the operation of the machine as easy as rowing a boat. It will be readily perceived by mining men, especially those in the construction and operating departments, in how many places this machine can be used to advantage and to what a great diversity of jobs it is adapted.

New Companies

The Freeburn Fuel Corporation, of Richmond, Va., capitalized at $300,000, has received a charter from the Virginia State Corporation Commission to operate coal mines. The incorporators are A. A. Meyers, president, Newport News, Va.; E. P. McGavock, secretary, and W. E. Broaddud, both of Richmond.

Massey & Wood, Inc., of Richmond, Va., have received a certificate of incorporation from the State of Virginia to mine, transport and sell coal. The concern is capitalized at $100,000, and its incorporators are Ivor Massey, president; Kenneth C. Wood, secretary; Whiting C. Faulkner, Edmund M. Preston and Irvin G. Craig, all of Richmond.

The Linton Coal Co., of Linton, N. D., is a new incorporation, with $25,000 capital stock. The incorporators are L. DeHeaume, W. C. Wolverton and F. B. Irvine.

The White Ash Coal Co., Dickenson, N. D., has been incorporated with $5,000 capital by M. A. Reilly, Peter Wodnisak and A. F. Reilly.

The Myrwill Coal Co., Gassaway, W. Va., was recently incorporated at $50,000, to mine coal along O'Brien's Creek in Clay County. The incorporators are: T. H. Wilson, M. H. Wilson, W. G. Johnston, I. B. Johnston and J. B. Fisher, all of Gassaway.

The Keystone Coal Co. has been incorporated in Denver, Colo., with a capital stock of $50,000, by P. M. Peltier, J. Connell and Charlotte A. Peltier.

The Korff Coal Co., of Evansville, Ind., has been incorporated under the laws of Indiana with a capital of $150,000. Incorporators were Walter Korff (who will act as president); his brother, Henry Korff, Jr., and Henry Korff, Sr. A new two-story office building will be erected by the firm at Eighth and Canal Streets, Evansville. A deal is now under way for the purchase of the retail business of the Bosse Coal Co., of Evansville, also for the Korff mine, owned by the same company. The pit is located near Boonville, Ind. If the deal goes through the Bosse company will continue operation of its other mine, the Buckskin, and also continue its wholesale business, according to Gilbert Bosse, president.

The Premium Coal Co., Huntington, W. Va., with a capital of $50,000, has been incorporated by George W. Kilburn, Huntington, and Miner Temper, of Williamson.

The Imperial Coal Mining Co. was incorporated in Muskogee, Okla., the last of May, with a capital of $50,000, by R. T. Price, 438 N. 16th Street, and others.

The Black Diamond Fuel Co. was incorporated in Boulder, Colo., the last of May, with a capital stock of $50,000, by W. W. Morgan, 1230 Grand View, F. W. Thurman and Tom Tisone.

The Raymond City Coal Co. has been incorporated with a capital of 1,000 shares of stock, no par value designated, to operate mines at Raymond City, W. Va., and to deal in coal and coke at wholesale. Incorporators are L. Marmet Wolfe, Otto E. Reemelin, John C. Hermann, Charles Stredel and Earl E. Wittengel.

The Wallace-Pritchard Coal Co., of Cambridge, Ohio, has been incorporated with a capital of $100,000 to mine and sell coal in the Cambridge field. Incorporators are J. H. Pritchard, D. L. Wallace, George M. Merritt, Frank A. Benua and W. E. Benua.

Amherst Company, Charleston, W. Va., was chartered on June 12, to mine coal and manufacture coke, with 300 shares of no-par value stock and $500 paid in. The incorporators are: Berkeley Minor, Jr., John V. Ray, C. R. Connor, F. T. White and E. Adkins all of Charleston.